Letter RO-4 – Center for Biological Diversity, California Chaparral Institute, and Preserve Wild Santee

RO-4-1 The comment provides introductory statements for the comment letter. The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-2 The commenter states that "the County's environmental review of the Project is deficient and fails to adequately analyze or mitigate for the Project's significant environmental impacts." The commenter provides no specific examples; therefore, it is not possible to provide further response.

RO-4-3 The comment provides introductory statements and background information about the commenter, the Center for Biological Diversity. The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-4 The comment provides introductory statements and background information about the commenter, Preserve Wild Santee. The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-5 The comment provides introductory statements and background information about the commenter, The California Chaparral Institute. The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-6 The commenter states that "…the RDEIR for the project fails to comply with CEQA and the CEQA Guidelines in numerous respects." The commenter does not provide any specific examples; therefore, no further response is provided.

RO-4-7 The comment states the EIR's analysis of and mitigation for the proposed Project's greenhouse gas emissions is inadequate. The comment serves as an introduction to comments that follow and sets forth the commenter's conclusion that Section 2.10, Global Climate Change, of the 2019 Recirculation Package fails to adequately analyze and mitigate the proposed Project's greenhouse gas emissions. Please see Responses to Comments RO-4-8 through RO-4-35 for responses to specific comments regarding greenhouse gas emissions.

RO-4-8 The comment summarizes research of the Intergovernmental Panel on Climate Change (IPCC), as well as findings presented in the United States' 2014 Third National Climate Assessment and 2017 Climate Science Special Report. The research and findings pertain to background information regarding the influence of human-caused activities on global climate change, and the environmental consequences of global climate change. The comment does not identify any issue with the information and analysis presented in Section 2.10, Global Climate Change, of the 2019 Recirculation Package; therefore, no further response is required.

RO-4-9 The comment summarizes research of the U.S. National Research Council, U.S. Environmental Protection Agency (USEPA), and other climate change scientists, as well as findings presented in the United States' 2014 Third National Climate Assessment. As with Comment RO-4-8, the research and findings pertain to background information regarding the influence of human-

caused activities on global climate change, and the environmental consequences of global climate change. The comment does not identify any issue with the information and analysis presented in Section 2.10, Global Climate Change, of the 2019 Recirculation Package; therefore, no further response is required.

RO-4-10 The comment states that "immediate and aggressive [GHG] emissions reductions are necessary to keep warming well below 2C above pre-industrial levels." The commenter also cites information provided in the IPCC's Fifth Assessment Report regarding global carbon budgets, as well as information regarding estimated increments of global warming (as measured in degrees Celsius). The comment does not identify any issue with the information and analysis presented in Section 2.10, Global Climate Change, of the 2019 Recirculation Package; therefore, no further response is required.

RO-4-11 The comment summarizes research from the World Resources Institute regarding the United States' position as "the world's biggest cumulative emitter of GHGs… and the world's second highest emitter on an annual and per capita basis." The comment then states that U.S. climate policy is "wholly inadequate" for purposes of avoiding the "worst dangers of climate change." The comment does not identify any issue with the information and analysis presented in Section 2.10, Global Climate Change, of the 2019 Recirculation Package; therefore, no further response is required.

RO-4-12 The comment states that California's climate change legislation, regulation, and policy are "[i]n response to inadequate action on the national level." The comment specifically references Assembly Bill (AB) 32, Executive Orders B-30-15 and B-55-18, and Senate Bill (SB) 375. The comment does not identify any issue with the information and analysis presented in Section 2.10, Global Climate Change, of the 2019 Recirculation Package (which discusses each of the referenced pieces of legislation and executive orders); therefore, no further response is required.

RO-4-13 The comment states that "climate change is a problem with cumulative impacts and effects," such that it is the "combined impacts of many [emissions] sources [that] can drastically damage California's climate as a whole." As such, the comment supports "project-specific GHG emissions disclosure, analysis and mitigation." The comment does not identify any issue with the information and analysis presented in Section 2.10, Global Climate Change, of the 2019 Recirculation Package (which discloses proposed Project-related emissions, impacts, and mitigation); therefore, no further response is required.

RO-4-14 The comment states that by relying on offsets to allow the proposed Project applicant to "to buy its way out" of having to actually reduce the GHG emissions of the proposed Project, the EIR fails to adopt feasible mitigation measures that could reduce the proposed Project's GHG emissions. For information responsive to this comment, please see Global Response R1: Carbon Offsets. Also please refer to Section 2.10, Global Climate Change, of the 2019 Recirculation Package, which explains the onsite project design features that reduce GHG emissions and why the use of carbon offsets is also a feasible and effective way to reduce GHG emissions under CEQA. The comment does not identify or recommend any specific construction or operational strategies to reduce the GHG emissions of the proposed Project. Therefore, no further response is provided.

RO-4-15 The comment states "The EIR's utter failure to require feasible mitigation measures to reduce GHG emissions from the Project" is made evident by a comparison with the Otay Village 14 Project. The commenter also provides two tables with comparative calculations of the Village 13 and Village 14 Projects. However, a direct comparison cannot be made between the two projects because they are located on two different sites with two different land use mixes. For example, the Village 14 Project includes 1,119 residential units, whereas the Village 13 Project includes 1,938 residential units, an increase of more than 40 percent that directly results in an escalation of Village 13 emissions as compared to Village 14 emissions.

The commenter's comparative calculations are based on an underestimated population projection for the Village 13 Project. As discussed in Section 3.5, Population and Housing, of the 2015 Draft EIR, the proposed Village 13 Project would accommodate an estimated residential population of 6,957 (not 5,384) persons, based on SANDAG data. The commenter also incorrectly identifies the residential population total for the Village 14 Project. As discussed in Section 3.1.5, Population and Housing, of the certified Final EIR for the Village 14 Project, that Project would accommodate an estimated residential population of 3,941 (not 5,269) residents. The certified Village 14 EIR (State Clearinghouse #2016121042) is available on the County's website. Thus, the projected residential population for the Village 13 Project is 43 percent greater than the Village 14 Project. Several factors, such as the land use development parameters (e.g., the Village 13 Project proposes 1,938 residential units, whereas the Village 14 Project includes 1,119 residential units), buildout schedule, size of development footprint, and grading quantities, illustrate important bases for the distinction between the GHG emissions inventory data for the Village 13 and Village 14 Projects.

RO-4-16 The comment states the EIR offers no reason why total and per capita emissions are much higher for the Village 13 Project in comparison to the Village 14 Project. Please see Response to Comment RO-4-15 for an explanation of Village 13 Project GHG emissions and the additional factors beyond population used to estimate a project's GHG emissions. As discussed therein, the comment focuses on the unmitigated emissions values, rather than the similarities between the two projects' emission reduction frameworks, as established via a suite of project design features/environmental design considerations and mitigation measures.

RO-4-17 The comment restates information presented in Section 2.10, Global Climate Change, of the 2019 Recirculation Package regarding the California Air Resources Board's (CARB) recommendation that lead agencies prioritize on-site design features to reduce emissions. The County notes that the proposed Project's suite of environmental design considerations and mitigation measures is consistent with CARB's recommendation, as the proposed Project's on-site emissions reduction framework addresses the primary aspects of the proposed Project's emissions source profile (e.g., building energy consumption; vehicle miles traveled). The comment does not raise an issue pertaining to the adequacy of the environmental analysis; therefore, no further response is required.

RO-4-18 The comment states that "[t]he EIR's failure to include mitigation to reduce the Project's emissions from vehicle miles traveled ('VMT') is particularly troubling." The comment then states the EIR proposes to reduce emissions from vehicles by a reduction of only 5% through

implementation of mitigation measure M-GCC-1. In response, mitigation measure M-GCC-1 sets forth Transportation Demand Management (TDM) strategies for residents, students, resort guests, and employees that collectively serve to reduce VMT. The TDM strategies were developed for the proposed Project by Chen Ryan Associates, following review of the proposed Project attributes and location and with reference to CAPCOA's TDM-related recommendations and quantification methodologies.

The proposed Project's approach to reducing VMT is multi-faceted: (1) the proposed Project is part of the master-planned Otay Ranch community, and benefits from the mix of uses provided throughout that community; (2) the proposed Project includes on-site, resident-serving uses within its own tract map boundary that serve to reduce trip lengths; and (3) mitigation measure M-GCC-1 contains TDM strategies for the reduction of VMT that are appropriate for the proposed Project's mix of uses and location. As discussed in the analysis prepared by Chen Ryan Associates (see Appendix A to Appendix C-2 of the 2019 Recirculated Portions of the Draft EIR), not all TDM strategies that will be implemented by the proposed Project are readily quantifiable. For example, the VMT quantification estimate does not take credit for the implementation of (i) a Walking School Bus Program for the on-site school, or (ii) a bike-sharing program at the on-site resort. While not immediately quantifiable, it is expected that implementation of these TDM strategies will result in additional VMT reductions conservatively not reported in the EIR.

It also is noted that the GHG emissions analysis presented in Section 2.10 of the 2019 Recirculation Package conservatively does not take quantitative credit for implementation of mitigation measure M-GCC-6, which will increase access to zero emission vehicle charging infrastructure in the Project site's residential and non-residential development areas beyond the existing regulatory standards. While not a VMT reduction strategy, implementation of mitigation measure M-GCC-6 also would serve to reduce the quantity of GHG emissions from mobile sources.

RO-4-19 The comment states that mitigation measure M-GCC-1 consists of "aspirational, unenforceable, vague, and deferred actions." In response, the TDM strategies presented in M-GCC-1 were formulated based on a supporting technical memorandum prepared by a transportation expert, Chen Ryan Associates (see Appendix A of Appendix C-2 in the 2019 Recirculation Package). Notably, Chen Ryan's analysis (specifically Table 1 therein) presents the quantification of expected VMT reductions from each TDM strategy based on technical guidance presented in CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures* report. Please also see Response to Comment RO-3-8, which contains information regarding the traffic calming features required by M-GCC-1, as well as the dissemination of information regarding transit options to residents.

RO-4-20 The comment states there are numerous feasible transportation-related measures that could considerably reduce VMT. The comment then refers to CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures* report as a source of "transportation-focused measures that the EIR should analyze, including, for example, providing local shuttles and installing Park-and-Ride lots." In response, as noted in Response to Comment RO-4-19, Chen Ryan Associates utilized the referenced CAPCOA report when preparing its analysis included in Appendix A of Appendix C-

2 in the 2019 Recirculation Package and incorporated appropriate TDM strategies into its analysis. As to the provision of local shuttles and installation of a park-and-ride lot, these were determined infeasible or not effective as explained below.

As shown in Appendix A in through C-2 of the 2019 Recirculation Package (which contains the analysis prepared by Chen Ryan Associates 2019), implementing the feasible transportation mitigation measures identified in M-GCC-1 would reduce the overall proposed Project VMT by 4.97% or 8,056 daily VMT. Other mitigation measures that were suggested in the CAPCOA report were evaluated and determined infeasible or ineffective at this time.

In regard to the local (internal) shuttle service, the proposed Project is designed to be a compact, walkable and bikeable community. Thus; thus, a local shuttle service between the residential area of the proposed Project and the town center area is not needed.

Additionally, park-and-ride lots are designed and managed by the State of California Department of Transportation (Caltrans). According to Caltrans' Park and Ride Program Resource Guide (2010), "Significant considerations are location [sic] in respect to a State highway, the choice of lead agency, linkage to other transportation modes, and connection to transit oriented developments" (p. 3). As such, the majority of the existing park-and-ride lots in the San Diego region are located near a state highway to make it convenient for commuters to meet and utilize either transit or carpool. A park-and-ride lot located centrally within the Project site would not be feasible or effective as Village 13 is not adjacent to a State highway. Of note, an existing park-and-ride lot is located at the East Palomar Street Transit Station, which provides a safe and convenient to carpool, vanpool, and transit users alike. This Transit Station and its park-and-ride lot are approximately 8 miles west of the Project site and could be used by proposed Project residents commuting to their places of employment.

RO-4-21 The comment concludes that the proposed Project's EIR has failed to adopt all feasible mitigation measures to reduce its GHG emissions. However, Section 2.10, Global Climate Change, of the 2019 Recirculation Package sets forth a mitigation framework that reduces Project-related GHG emissions to net zero, thereby avoiding any adverse change to existing environmental conditions. Please also see Global Response R1: Carbon Offsets, which explains why the use of carbon offsets (in combination with the proposed Project's other on-site emissions-reducing strategies) is a feasible and effective way to reduce GHG emissions under CEQA.

RO-4-22 The comment states that the EIR's reliance on offset purchases to mitigate the vast majority of the proposed Project's GHG emissions is flawed. The comment serves as an introduction to the commenter's "significant concerns" regarding the use of carbon offsets to mitigate the proposed Project's GHG emissions. Please see Response to Comment RO-4-23 through Response to Comment RO-4-27 for information responsive to specific comments on this subject. The County also notes that CARB, in its *California's 2017 Climate Change Scoping Plan*, provided that—when evaluating project-level mitigation options for the reduction of GHG emissions–"[i]t may also be appropriate to utilize credits issued by a recognized and reputable voluntary carbon registry."

RO-4-23 The comment characterizes the use of carbon offsets as a "mitigation fee," summarizes CEQA case law pertaining to the adequacy of mitigation fee programs, and states that the EIR's use of carbon offsets is insufficient because it "fails to provide evidence that qualifying offsets will include only those that function in a manner that will result in actual, effective mitigation, and defers the decision regarding what instruments qualify to a third-party accrediting organization." In response, mitigation measures M-GCC-7 and M-GCC-8 provide multiple criteria and performance standards designed to ensure that carbon offsets procured for the proposed Project, should it be approved, would be of high environmental integrity and secured from carbon registries that have been approved by CARB. These two mitigation measures ensure that carbon offsets are purchased from recognized, reputable carbon registries, and that the offsets meet enumerated standards designed to ensure the offsets are generated by projects and activities that effectively avoid, reduce or sequester GHG emissions. The use of carbon offsets in this context also is not analogous to a "mitigation fee," as characterized by the commenter, because the offsets purchased by the Project applicant would relate to a specific activity(ies) undertaken to reduce GHG emissions pursuant to scientifically-vetted protocols. Please also see Global Response R1: Carbon Offsets, which explains why the use of carbon offsets is a feasible and effective way to reduce GHG emissions under CEQA.

RO-4-24 The comment states that "the EIR fails to provide evidence that a sufficient quantity of offset credits is available" and will continue to be available and claims that the mitigation measures include "no fallback provisions" in the event that a sufficient quantity of offsets is not available. The County acknowledges that development of offset projects is driven by market demand, which—at least in part—is influenced by California's strong environmental protection policies. Further, the proposed Project's mitigation triggers protect against the speculative potentiality referenced by the commenter, as proof that a sufficient offset quantity must be provided *before* issuance of permits. Therefore, if offsets are not available, permits will not be issued and emissions will not occur. Please also see Global Response R1: Carbon Offsets for evidence regarding the quantities of offsets issued by carbon registries.

RO-4-25 The comment states that "the EIR does not ensure that offsets purchased to mitigate the Project's impacts will come from local, regional, or state GHG reduction projects." The comment also states the EIR grants the County Planning director broad discretion to allow the Project applicant to acquire credits on the national or international market. The comment further states "offsets on the international market can have dubious effectiveness and weak enforcement mechanisms, and as a result can be cheaper and more attractive to buyers." In response, both mitigation measures M-GCC-7 and M-GCC-8 include a process by which the Director of the Planning & Development Services Department shall assess whether the proposed Project's offsets have been procured in accordance with the geographic prioritization preference, which requires local reduction options prior to the use of reduction options affiliated with more distant geographies.

RO-4-26 The comment states that mitigation measure M-GCC-8 provides a "one-way ratchet" to reduce the GHG emissions mitigation burden, but not a lever to increase the GHG emissions mitigation burden. In response, M-GCC-8 delineates a process whereby the proposed Project can request a modification to the GHG emissions mitigation burden should the regulatory or technological environment change; such modification would be considered by the County's Board of

Supervisors pursuant to a noticed public hearing process. Additionally, if such modification is requested, the proposed Project is required to demonstrate the continuing adequacy of modeling inputs used in the EIR that are not proposed to be altered as part of the "true-up" process, thereby ensuring a balanced re-quantification of all of the proposed Project's emissions sources. The measure's "true-up" parameters are designed to respect the finality of the CEQA process, absent the request for an additional discretionary entitlement or approval. The County also notes that, as a general matter, it does not expect proposed Project-related GHG emissions to increase beyond those reported in the EIR for at least two reasons: (1) emissions modeling conducted for CEQA purposes often is based on a series of conservative inputs designed to assess impacts; and (2) regulatory and technical developments have continually trended towards more efficiency and fewer emissions.

RO-4-27 The comment states that the EIR's approach is part of "a disturbing trend in the County" to permit "sprawling development projects" to shift their GHG emission reduction parameters "elsewhere." In response, the proposed Project is part of and proposes development parameters that are consistent with the Otay Ranch GDP/SRP approvals issued by the County (and City of Chula Vista) in 1993. As also discussed in the EIR, the proposed Project utilizes a portfolio of effective on-site and off-site strategies to reduce GHG emissions.

As for the Cap-and-Trade Program referenced by the comment, and its limitation on the use of offsets for each entity's annual emissions reduction obligation, the Cap-and-Trade Program regulates stationary source entities, like fuel refineries and electric-generating facilities. Those entities are subject to a gradually declining emissions cap, and subject to much different regulatory controls than the land use development sector since the operational attributes of the source are under common ownership and control. Here, the County—as a local land use jurisdiction—is able to control and regulate discrete aspects of the land use proposal; however, it is not able to control many of the personal decisions, practices, and habits of the proposed Project's residences and other land uses for policy and legal reasons.

The County also has determined that its approach is consistent with CARB's recommendation in *California's 2017 Climate Change Scoping Plan*, as on-site environmental design considerations and mitigation measures have been prioritized.

RO-4-28 The comment states that the EIR "fails to discuss the potential environmental effects associated with relying on the purchase of out-of-County offsets." As discussed in Global Response R1: Carbon Offsets, CEQA Guidelines Section 15126.4(a)(1)(D) states: "If a mitigation measure would cause one or more significant effects in addition to those that would be caused by the project as proposed, the effects of the mitigation measure shall be discussed but in less detail than the significant effects of the project as proposed." In this instance, and based on the type of information reasonably available at this time, the proposed Project's utilization of carbon offsets—via implementation of mitigation measures M-GCC-7 and M-GCC-8—is not expected to result in one or more significant effects because carbon registries prioritize protocols for offset project types that can create significant co-benefits and avoid those with significant negative social and environmental impacts. In support of this determination, please see Climate Action Reserve's webpage regarding "Criteria for Protocol Development" included as Attachment

RO4.1. See also Climate Action Reserve's Program Manual (September 1, 2015) included as RO4.2. As provided in Section 2.4.6 of the Program Manual, the Climate Action Reserve "requires project developers to demonstrate that their GHG projects will not undermine progress on other environmental issues such as air and water quality, endangered species and natural resource protection, and environmental justice." In order to ensure that such adverse effects are avoided, the Climate Action Reserve coordinates with government agencies and environmental representatives, requires project developers to demonstrate compliance with all applicable laws (including environmental regulations), and may include – within individual offset protocols – requirements specifically designed to serve as environmental and social safeguards. Other carbon registries recognized by the proposed Project's mitigation framework deploy the same overall approach to environmental protectionism. ——

The commenter references mitigation measures M-GCC-7 and M-GCC-8, which allow for carbon offsets to be purchased from Verra, which is one of the Offset Project Registries certified in the state of California Air Resources Board. The project has not identified a specific Offset Project Registry at this time, but if an offset program is chosen in the state of California it will be approved by the California Air Resources Board. The comment expresses a concern that the generation of renewable energy from wind farms, among other sources, can have an impact on wildlife. The comment specifically refers to wind farms designed to produce renewable energy as one form of offset-generating project that may significantly impact wildlife. A proper evaluation of impacts attributable to a proposed wind farm would require additional information, such as the location of the project, the types of wildlife species present, the project site design, that is not available now. As such, the analysis requested by the commenter is speculative (see CEQA Guidelines Section 15145).

RO-4-29 The comment states that the American Carbon Registry accredits offsets generated by carbon capture and storage projects, which have the potential for significant health and safety risks including the potential to contaminate or degrade water supplies. The comment further states the EIR must discuss the effects of such projects that may themselves have considerable land use, biological, or other impacts. In response, a proper evaluation of impacts attributable to a proposed carbon capture and storage project would require additional information, such as the location of the project, the depth of groundwater, the presence of contaminants of potential concern and the project site design, that is not available now. As such, the analysis requested by the commenter is speculative (see CEQA Guidelines Section 15145).

RO-4-30 The comment provides background information regarding the parameters of the State Planning and Zoning Law. The comment does not identify any specific issue with the environmental analysis presented in the 2019 Recirculated Portions of the Draft EIR. Therefore, no further response is provided or required.

RO-4-31 The comment states that the County's reliance on mitigation measures M-GCC-7 and M-GCC-8 to offset the Project's GHG emissions is inconsistent with General Plan Goal COS-20. In response, please see Global Response R1: Carbon Offsets, as well as Appendix E-1 (and Attachment A thereto) of the 2019 Recirculated Portions of the Draft EIR. As explained therein, the proposed mitigation measures are consistent with the General Plan because the measures

would reduce Project-related GHG emissions beyond a level necessary to align with the statewide reduction targets established by AB **32** and SB 32. Based on a review of the factual record, legal precedent and policy prerogatives described in the referenced record documents (see Global Response R1: Carbon Offsets of the Final EIR, and Appendix E-1 (and Attachment A thereto) of the 2019 Recirculated Portions of the Draft EIR), Goal COS-20 and Policy COS-20.1 do not – and were never intended to – impose any restrictions on the use of all available measures to reduce GHG emissions under the County's jurisdiction and, for this reason, permit the use of out-of-County offsets as a tool to reduce GHG emissions.

RO-4-32 The comment states that the EIR is deficient "because it incorrectly claims that the Project is consistent" with General Plan Goal COS-20. The comment also references a decision by a judge of the San Diego County Superior Court. In response, this comment is referring to a separate judicial proceeding – —presently on appeal—concerning the County's February 2018 adoption of a Climate Action Plan (CAP). Please see Global Response R1: Carbon Offsets and Global Response R2: CAP Consistency for information responsive to this comment. As discussed in Response to Comment RO-4-31, substantial record evidence supports the County's interpretation of General Plan Goal COS-20 and consistency determination.

RO-4-33 The comment refers to the Golden Door Properties, LLC v. County of San Diego case. The comment also cites an excerpt from a judicial determination made by the San Diego County Superior Court in the referenced CAP litigation. In response, the judicial determination is presently on appeal. As discussed in Global Response R2: CAP Consistency, the proposed Project does not tier from, rely on, or use the mitigation measures at issue in the CAP litigation, and has prepared a CEQA analysis independent from that prepared by the County for the CAP. Therefore, while California's judicial system continues to adjudicate the sufficiency of the County's CEQA compliance for the CAP, the County can continue to process land use development applications and requested entitlements for the proposed Project.

RO-4-34 The comment states that the County's persistent use of off-site mitigation for projects' in-County GHG emissions, its reliance on a "tortured and unsupported reading of COS-20, and failure to analyze the proposed Project's inconsistency with COS-20 violate CEQA and the CEQA Guidelines." Please see Response to Comment RO-4-31.

RO-4-35 The comment expresses the opinion that the County should not approve the proposed Project "until it has developed and adopted a legally sufficient [CAP] and can analyze and mitigate the Project's GHG emissions consistent with that plan." Please see Response to Comment RO-4-33.

RO-4-36 The comment states the EIR's analysis of and mitigation for the proposed Project's impacts to biological resources remain deficient. The commenter also expresses disappointment that the 2019 Recirculation Package did not contain a new, updated, and legally sufficient analysis of the proposed Project's impacts to biological resources. This comment serves as an introduction to specific issues raised in following comments. Please refer to Responses to Comments RO-4-37 through RO-4-64.

RO-4-37 The comment states the EIR's analysis of and mitigation for impacts to Quino checkerspot butterfly are inadequate. This comment serves as an introduction to specific issues raised in

comments that follow. The comment also describes historical information on the Quino checkerspot butterfly. Please refer to Responses to Comments RO-4-40 through RO-4-60.

RO-4-38 The comment describes population dynamic information on the Quino checkerspot butterfly. The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-39 The comment describes population dynamic and historical information on the Quino checkerspot butterfly. The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-40 The comment states that the EIR fails to disclose that the proposed Project will destroy "core" critical habitat for the Quino checkerspot butterfly. The comment further states while the EIR discloses that the proposed Project will have direct and indirect effects on critical habitat, it does not acknowledge any potentially significant impacts associated with the destruction or adverse modification to critical habitat. The comment also describes the definition of critical habitat. In response, critical habitat impacts are quantified in the 2019 Recirculation Package, Chapter 4.0 and in the Biological Technical Report for Alternative H. A determination of "destruction or adverse modification" of designated critical habitat, as defined under the federal Endangered Species Act, is made by the USFWS in their Biological Opinions for Section 7 consultations. As such, it is a determination under federal law, not a CEQA issue, and therefore is not included in the SEIR. Pre-project meetings with the U.S. Army Corps of Engineers (USACE) concluded that the Corps will take jurisdiction of all of the Waters of the U.S. onsite, and, as such and due to their locations throughout the site, the USACE will also address the impacts to Quino checkerspot butterfly.

RO-4-41 The comment describes information from the 2003 Recovery Plan on the Quino checkerspot butterfly. The comment does not raise an issue regarding the adequacy of the environmental analysis;; therefore, no further response is provided.

RO-4-42 The comment describes information from the 2003 Recovery Plan and 2009 update published by the USFWS on the Quino checkerspot butterfly. The comment does not raise an issue regarding the adequacy of the environmental analysis;; therefore, no further response is provided.

RO-4-43 The comment states that the majority of the proposed Project's development footprint encroaches onthe designated Unit 8 critical habitat area and would directly destroy 483 acres. In response, this comment is referring to the proposed Project's impacts as discussed in Section 2.3 of the Draft EIR, which was previously circulated for public review. The impacts to critical habitat resulting from Alternative H are described in the 2019 Recirculation Package in Table 8 of Appendix D-3. A determination of "destruction or adverse modification" of designated critical habitat, as defined under the federal Endangered Species Act, is made by the USFWS in their Biological Opinions for Section 7 consultations. As such, it is a determination under federal law, not CEQA. Thus, it is not included in the Draft EIR. The 2019 Recirculation Package has been revised to include the reference to the 2009 update of the Recovery Plan.

RO-4-44 The comment states the County has elsewhere acknowledged the high conservation value of the project site for Quino checkerspot butterfly. The comment letter includes an attachment that is a "QCB Heat Map" prepared by the County in conjunction with a proposed "Quino Amendment" to the South County MSCP. The commenter plotted the proposed Project's development footprint over the Heat Map, which shows the development footprint lies mostly on habitat at the highest range of conservation value. In response, the County acknowledges that, based on presence of host plant, much of the Village 13 property is suitable for Quino checkerspot butterfly suitable habitat within the entire site was assumed occupied regardless of whether butterflies were detected during the multiple survey efforts.

RO-4-45 The comment describes information from threshold of significance Criterion G. The comment does not explain the specific "deficiency" referred to; therefore, no further response can be provided.

RO-4-46 The comment states that the EIR determined that impacts to the core wildlife area are considered less than significant because approximately 1,089 acres would be preserved on-site, which is expected to be sufficient to support viable populations of common and sensitive species. The comment then states that the analysis in the EIR makes no mention of Quino checkerspot butterfly and provides no evidence to support the conclusion that the preserved open space is sufficient to support viable populations of this endangered species. Contradictory to the comment, the DEIR and SEIR do not conclude that impacts to wildlife are less than significant. In fact, impacts are considered significant to the following: vegetation due to direct impacts, habitat due to indirect impacts, temporary impacts, Cornerstone Lands, City of Chula Vista offsite areas, jurisdictional wetlands, vernal pools, sensitive plants and habitats per the RMP2, Quino checkerspot butterfly, San Diego fairy shrimp, wildlife movement, California gnatcatcher, burrowing owl, and least Bell's vireo. Section 2 of the Biological Technical Report, Sensitive Wildlife Species, has a thorough review of the Quino checkerspot butterfly, the impacts, the detailed host plant mapping, and the preservation of the species including acreage of preserved suitable habitat and necessary habitat features such as hilltops and ridgelines. The following is a summary from the D-3 appendix of the preservation that is focused on this species: "A biological open space easement would be placed over the Otay Ranch RMP Preserve and Conserved Open Space on site, for a total of 1,177.03 acres (Table 2). In order to mitigate for impacts to occupied Quino checkerspot butterfly habitat specifically, Alternative H proposes to conserve approximately 1,107.72 acres of suitable, restored, or occupied coastal sage scrub for Quino checkerspot butterfly on site, all of which is located within the existing Otay Ranch RMP Preserve and Conserved Open Space areas. The 1,107.72 acres includes coastal sage scrub and disturbed coastal sage scrub within the Otay Ranch RMP Preserve including the temporary allowable impact areas which will be restored (1,030.87 acres), Conserved Open Space including the area of thornmint that is regularly used by Quino checkerspot butterfly (65.15 acres) and restored or enhanced areas that are currently not suitable (11.70 acres). For the purposes of protecting Quino Checkerspot butterfly habitat, the 1,107.72 acres would be protected through the biological open space easement discussed above. Thus, impacts (389 acres) would be mitigated at a mitigation ratio of at least 2.85:1. Additional mitigation may be required as determined by the wildlife agencies during the take authorization process for Quino checkerspot butterfly."

RO-4-47 The comment states the EIR fails to disclose the proposed Project's impacts to existing critical habitat for Quino checkerspot butterfly from the proposed Project's edge effects. The comment refers to dust, invasive plants and animals, noise, increased wildfire risk, lighting, and other byproducts of development as edge effects, including direct and indirect impacts.. Indirect impacts resulting from Alternative H are reduced from the proposed Project footprint with the design with much less edge. Additionally, the Otay Ranch Edge Plan provides analysis and description of the edge 100 feet from the project boundary, which is designed to prevent trespass, impacts due to lighting and noise, intrusion by non-native plant species, and disruption due to pets. Indirect impacts are addressed by the following mitigation measures: M-BI-1b through 1f, 14, 15, and 18.

RO-4-48 The comment states that the project's edge effects would affect the species (Quino checkerspot butterfly) thousands of feet from the development site, effectively creating a large zone of impact that the EIR ignores.

A Preserve Edge Plan was prepared for the proposed Project and is included in the 2015 Draft EIR. A Preserve Edge Plan was also prepared for Alternative H and is included as Appendix D-21 in the 2019 Recirculation Package. Implementation of components of the Preserve Edge Plan is a required element of several mitigation measures designed to avoid and minimize adverse edge effects, including mitigation measures M-BI-1f (Fencing and Signage), M-BI-13 (Stormwater Pollution Prevention Plan), and M-BI-14 (cover of stockpiles, no toxic chemicals, no invasive plant species, no drainage into the preserve, slope stabilization is implemented, noise is minimized and no lighting of the Preserve is allowed).

RO-4-49 The comment describes general information regarding behavior of the Quino checkerspot butterfly larvae. The comment also states that, when the caterpillars actively crawl throughout the landscape to find suitable conditions, the caterpillars will "be at risk to being crushed and killed by human trampling from direct or indirect (e.g. vehicles) contact, the incidence of which is greatly increased by the Project." The comment does not raise an issue regarding the adequacy of the environmental analysis;; therefore, no further response is provided.

RO-4-50 The comment states that "indirect effects of the project include the introduction of invasive exotic plants that will be used for ornamental purposes in the homes, roadway medians, and other developed areas and invasive exotic animals that will outcompete or feed on the Quino checkerspot butterfly". Alternative H includes mitigation measures (M-BI-1b through 1f, 14, 15, and 18) that prohibit planting of non-native invasive plant species within the edge area (the 100 feet of edge that surrounds the development) of the development and fencing to prevent access of both humans and non-native animals. In addition, the Quino Management/Enhancement Plan includes habitat restoration activities including removal of non-native species. As part of the responsibilities of the POM, the management of the Preserve and the Conserved Open Space includes invasive species removal and control of non-native animals.

RO-5-51 The comment states the EIR fails to acknowledge the indirect impacts to the Quino checkerspot butterfly from habitat degradation from edge effects, and the EIR fails to mitigate these impacts or adopt measures that will be effective in reducing or avoiding them. The comment also refers to M-BI-1f (fencing and signage). Mitigation included for the proposed Project and Alternative

H for indirect impacts benefits the Quino checkerspot butterfly. Please refer to Responses to Comments RO-4-48 and RO-4-50 and Global Response R4: Quino Checkerspot Butterfly.

RO-4-52 The comment states the FEIR's mitigation for the proposed Project's impact to Quino checkerspot butterfly is inadequate, which is an introductory statement to comments that follow. The comment also discusses Quino checkerspot butterfly habitat and states "the Project would result in the species being less likely to persist during poor environmental conditions or able to build its numbers during good years, placing stress on the metapopulation." The County acknowledges that the Village 13 property supports a core population of Quino checkerspot butterfly. During surveys conducted in 1998, 1999, 2000, 2004, 2008, and 2016, the locations of the butterfly at times have shifted. However, the top of the area occupied by San Diego thornmint, the area along the northern boundary (less so in 2016), the ridgeline in the north-central portion, and the area at the northeastern corner, have been routinely used by the species. Additionally, the ridgelines, which are included in the preserve, are important features for the species. The impact to 389 acres of suitable habitat is mitigated by the preservation of 1,177 acres of Preserve and Conserved Open Space, of which 1,107 is suitable habitat. Impacts to critical habitat would be addressed during the federal permitting process as noted in Response to Comment RO-4-40.

RO-4-53 The comment states that the proposed mitigations for impacts on Quino checkerspot are inadequate to reduce the proposed Project's impacts to less than significant. In response, the proposed Project will preserve 1,177 acres in the Preserve and Conserved Open Space and a Quino Checkerspot Management/Enhancement Plan will be implemented. The Preserve would be managed by the POM and the Conserved Open Space would be managed by either the POM or other qualified manager. With implementation of mitigation measures M-BI-9a and M-BI-9b, the impacts to Quino checkerspot butterfly would be mitigated to less than significant.

RO-4-54 The comment states that merely requiring the Project applicant to obtain a take permit from the USFWS in the future does not ensure that impacts from the proposed Project will be fully mitigated. The comment also states this measure does not satisfy CEQA's requirements for deferred mitigation and that the EIR does not justify why the application for take permits has been deferred until after CEQA review has been completed and the County Board of Supervisors has approved the project. In response, the take permit process would be conducted under Section 10 or Section 7. The USFWS will issue a Section 10 Take permit provided that the action does not appreciably reduce the likelihood of the survival and recovery of the species in the wild. Similarly, USFWS will issue a Section 7 Biological Opinion provided there is the conclusion of no jeopardy to the species. Thus, a take authorization will be required to provide adequate mitigation for the Quino checkerspot butterfly. There has been coordination with the Wildlife Agencies during the CEQA process. Under Alternative H, the development footprint is consistent with the MSCP development and Preserve boundary, for which an implementing agreement has been signed by the Wildlife Agencies and issued. The Quino checkerspot butterfly Management/Enhancement Plan was provided to the USFWS for their review. Communication has been conducted with the wetland permitting agencies, including the preparation of the Biological Assessment for support of a Section 7 Consultation, all of which has been done prior during preparation of the Final EIR. Finally, wetlands permits are not able to be issued until a final CEQA document has been prepared.

RO-4-55 The comment states the bulk of the EIR's proposed mitigation is "preservation" of 966 acres on the Project site and restoration of an additional 6.3 acres. The comment further states the onsite mitigation is inadequate, proposing to place acreage next to the Project and degraded edge effects, and that a 2:1 ratio with largely onsite habitat will not reduce impacts to less than significant. In response, the comment is addressing the mitigation and acreage for the proposed Project, as presented in the 2015 DEIR that was previously circulated for public review. Alternative H proposes to conserve approximately 1,107.72 acres of suitable, restored, or occupied coastal sage scrub for Quino checkerspot butterfly on site, all of which is located within the existing Otay Ranch RMP Preserve and Conserved Open Space areas. Under Alternative H, impacts to Quino habitat would be mitigated at ratio of 2.85:1.

RO-4-56 The comment states that any mitigation should be based on the biology and ecology of the Quino checkerspot butterfly, and designed to ensure the affected metapopulation will be able to survive. The comment also refers to a 2:1 mitigation ratio and a proposed future Quino Amendment to the MSCP. In response, the comment is addressing the mitigation and acreage for the proposed Project, as presented in the 2015 DEIR that was previously circulated for public review. Under Alternative H, the mitigation ratio would be 2.85:1. These measures are not inconsistent with the County's efforts to prepare a Quino Amendment.

RO-4-57 The comment states that the EIR fails to adopt specific performance measures to ensure that lands set aside for Quino checkerspot butterfly habitat will be managed properly. The comment further states that, instead, the Project applicant will prepare a long-term Management/Enhancement Plan whose only requirement is survey methodology. In response, the Management/Enhancement Plan will require County and Wildlife Agency review and concurrence. The Plan will include, at a minimum, a survey methodology for on-site preserve areas pre- and post-construction to monitor effects on Quino checkerspot butterfly population health, restoration, and enhancement requirements to improve the habitat for the Quino checkerspot butterfly, and adaptive management techniques with contingency methods for changed circumstances. The draft plan includes performance measures that may include but are not limited to restoration and enhancement requirements that outline the percent native cover, percent survival, and percent nonnative cover; quantifiable adaptive management triggers that rely on population monitoring and statistical changes in the population size to then require restoration as noted above or reintroduction of the species and continued restoration of unoccupied areas when population declines are not noted. These measures shall ensure that the potential loss of individuals and the loss of habitat for the species related to the proposed development are adequately offset by measures that will enhance the existing preserved population and shall provide data that will help the species recover throughout its range. In addition, the POM provides preserve management including (but not limited to) such tasks as trespass control, invasive species control, trash removal, monitoring, reporting, and other management tasks.

RO-4-58 The comment states that the County's approach to the Quino Management/Enhancement Plan is contrary to case law (Preserve Wild Santee v. City of Santee). In response, mitigation measure M-BI-9b statesthe following: "Quino Management/Enhancement Plan: Prior to the issuance of the first grading permit that impacts Quino checkerspot butterfly, the Project applicants shall prepare a long-term Quino Checkerspot Butterfly Management/Enhancement Plan that shall, at

a minimum, include a survey methodology for on-site preserve areas pre- and post-construction to monitor effects on Quino checkerspot butterfly population health (Appendix C). This Plan will be submitted to, and be to the satisfaction of, both the Directors of Planning & Development Services, Parks & Recreation, USFWS, CDFW, and the POM. Adaptive management techniques shall be developed within the plan with contingency methods for changed circumstances. These measures shall ensure that the potential loss of individuals and the loss of habitat for the species related to the proposed development are adequately offset by measures that will enhance the existing preserved population, and shall provide data that will help the species recover throughout its range."

RO-4-59 The comment states the EIR fails to adequately analyze cumulative impacts to the Quino checkerspot butterfly. The comment then discusses cumulative impacts analysis as required by the CEQA Guidelines. This comment serves as an introductory statement to the comment that follows. Please refer to Response to Comment RO-4-60.

RO-4-60 The comment states the EIR fails to calculate the total cumulative permanent loss of Quino checkerspot butterfly habitat or evaluate the effect this loss will have on the species. In response, at the time the 2015 DEIR was circulated, impacts to Quino checkerspot butterfly that could result from other projects had not yet been specifically identified. The Final EIR for Village 14 and Planning Areas 16/19, which was released subsequent to 2015, states that the Village 14 Project would result in impacts to 794.7 acres of potential habitat and 502.3 acres of USFWS-designated critical habitat (page 2.4-81). Village 14's EIR contains mitigation measures M-BI-8, 9, and 10, which address impacts to Quino checkerspot butterfly and its habitat. However, the full extent and effectiveness of the mitigation may not be known until the developer obtains incidental take authorization. Similarly, for several other projects analyzed in the 2015 DEIR cumulative analysis (Otay Tech Center, Otay Mesa Generating Project, East Otay Mesa Landfill, Otay Hills Quarry, and Otay Business Park), the specific impacts and mitigation were unknown at the time the 2015 DEIR circulated for public review. Although the analysis for Alternative H did not cite the 2009 five-year Review of the Quino checkerspot butterfly, based on multiple surveys and analysis of the species, it has been addressed as a resilient population of this sensitive species with a population present on the site that will require management and take authorization. New survey information is included in the Appendix D-3 analysis of Alternative H. This new information included a survey for Quino checkerspot butterfly in 2016 and additional rare plant surveys conducted in 2015 after the DEIR was released for circulation. The County acknowledges the Recovery plan as well as the five-year update and Recovery plan update. The applicant will be seeking take authorization under Section 7 and will comply with conditions that are required during the Section 7 consultation. Therefore, the information presented in the 2015 DEIR and the 2019 Recirculation Package is adequate based on the information available at the time.

RO-4-61 The comment states the analysis of and mitigation for the proposed Project's impact to vernal pools and vernal pool species are inadequate. The comment discusses the proposed Project's impact on the K6 vernal pool complex, as presented in their comment letter in 2015. The County acknowledges that the K6 vernal pool complex would be impacted under Alternative H. The MSCP includes the K6 complex area within the development footprint. Multiple years of surveys for San Diego and Riverside fairy shrimp were conducted in 1999, 2000, 2003, 2007–2008, and

2014–2015. These surveys indicate that the pools no longer become inundated. Regardless, the impacts are considered significant, and mitigation measure M-BI-7 is provided for the pools as well as the one pool that was determined as occupied by San Diego fairy shrimp.

RO-4-62 The comment discusses the proposed mitigation options for impacts to the K6 vernal pool complex. The comment states the EIR provides no evidence vernal pool restoration activities would be effective and the mitigation banking fee is "so vague as to be nearly meaningless." In response, CEQA does not require specifying the location of a mitigation bank. Under the permitting process, a suitable bank will require wetland permitting agency review and approval for use as mitigation. A number of vernal pool restoration activities have been documented to be successful within San Diego County. These include locations such as Manzanita Partners in Carlsbad, Fry's vernal pools in San Marcos, and Mission Trails Regional Park pools in San Diego, to name just a few. All of these examples resulted in functional vernal pools that hold water, are occupied by special-status plants, and are occupied by San Diego fairy shrimp. The restoration plan for the K8 complex will be reviewed by the County, Wildlife Agencies, and wetland permitting agencies prior to approval.

RO-4-63 The comment states the proposed Project should, at a minimum, be reconfigured so that the footprint does not cause the destruction of the K6 vernal pool complex or take of San Diego fairy shrimp. In response, the mitigation (measure M-BI-7) will provide for a greater than net loss replacement of functions and values of the impacted K6 vernal pools. The mitigation will be reviewed during the wetland permitting process. In addition, take authorization will be required for San Diego fairy shrimp impacts with which the applicant will comply. It should also be noted that the MSCP included the K6 and K8 complex areas within the development footprint.

RO-4-64 The comment states the analysis of and mitigation for the proposed Project's impacts to golden eagles are inadequate. The comment further states that the "DEIR incorrectly concludes that the impact 620 acres of foraging habitat would be less than significant because 'other' suitable foraging habitat would be preserved on site." Please see Global Response 2: Golden Eagle.

RO-4-65 The comment states the EIR's fire risk and fire safety analyses are inadequate. The comment further states "to comply with CEQA, the County must provide adequate information and analyses on existing conditions and proposed avoidance, minimization, and mitigation measures…." In response, the Final EIR provides adequate information and analyses regarding wildfire risk for both the proposed Project and Alternative H. Fire Protection Plans (FPPs) (Appendices C-21 and D-21 to the Final EIR). A Wildland Urban Interface (WUI) Plan will be prepared for the project site by the County specific to the Project site prior to occupancy. The WUI will include a risk assessment matrix and step-by-step response plans for emergencies at the Project site. Further, the FPPs include analyses of fire risk, fire behavior, emergency response, fire safety requirements, and evacuation. It should be noted that roughly 70 percent of San Diego County is designated as very high fire hazard severity zone (VHFHSZ). The areas that have not received this designation are the urbanized areas. The fact that an area is designated as a VHFHSZ does not preclude development, but indicates that additional measures are required to address the increased likelihood of wildfire. The Project incorporates all of the required measures and provides for a comprehensive wildfire protection approach that

has been shown to perform well in wildfires. For both the proposed Project and Alternative H, the development would be constructed in compliance with all applicable fire codes, including those specifically for VHFHSZ areas. Compliance with the FPP would be ensured during building permit review, and an on-site temporary and permanent fire station would ensure compliance with emergency travel time requirements. As a result, impacts due to wildfires would be less than significant. The fire risk and fire safety analyses in the FEIR are adequate for the public and decision makers to analyze the proposed Project and its alternatives.

RO-4-66 The comment refers to a letter the commenter previously sent on November 13, 2018, to the County Board of Supervisors (Attachment 8 to comment letter RO-4). The commenter states issues raised in the 2018 letter apply to this proposed Project, which are listed and responded to below. Attachment 8 is provided a separate response.

(1) The commenter states that developments in fire-prone natural areas that have historically burned have the highest chance of burning. In response, the FPP includes a discussion of the fire history and fire behavior for both the existing condition and post-development. This comment does not raise a specific issue regarding the adequacy of the environmental analysis in the EIR; therefore, no further response is provided.

(2) The comment states that development in fire-prone areas will lead to more frequent human-caused fires in Southern California., while referencing Attachment 8. The comment provides a summary of inferred "findings" of the Attachment 8 study by Jon E. Keeley. The comment provides no additional supporting information requiring response. Because the study is not directly comparable with the proposed Project and the findings actually conflict with the comment's assertion, the comment raises no new issues with the DEIR or its analysis, and therefore requires no additional response. A thorough response to the Keeley article in the comment's referenced Attachment 8 is provided as RO-4-113.

(3) The comment states public safety in developments like Otay Village 13 cannot be guaranteed. In response, the many fire protection requirements that were specifically developed for buildings within very high fire hazard severity zones provide a reduced risk of structure loss. Village 13 would include structures built to the latest ignition-resistant codes and maintained fuel modification zones. Please refer to the proposed Project's FPP for details regarding the layered approach to fire protection, which includes access, water, defensible space, ignition-resistant structures, ongoing maintenance, and fire response, among others.

(4) The comment states developments like Otay Village 13 contain insufficient fire safety and fire protection plans. In response, San Diego County has developed a comprehensive approach to fire protection planning in fire hazard severity zones and wildland urban interface areas. The approach includes a thorough vetting of the potential fire hazard and risk and requirements for appropriately mitigating them (refer to San Diego County Guidelines for Determining Significance and Report Format and Content Requirements, Wildland Fire and Fire Protection 2010).

(5) The comment states increased human-caused ignitions will increase unnatural levels of smoke. In response, as indicated in response to the comment letter's Attachment 8 (as provided

in RO-4-113), the referenced studies regarding unnatural levels of smoke are not supported. Specifically, the required fuel modification buffers between the proposed Project's areas of human use, including roadways within and leading to the Project site where they cross native vegetation areas, minimize the potential for increases in ignitions that become large fires producing unnatural smoke levels. Further, the additional firefighting resources on the site would be in a position to provide fast response to ignitions in the area, minimizing the potential for fire to grow beyond the incipient stage. Firefighters are incredibly adept at extinguishing vegetation and structure fires during typical weather conditions, which occur 90% or more of the time. During fire weather, which occurs during the periods where humidity drops and winds increase (Red Flag Warning conditions), the potential for a vegetation ignition to grow quickly and become a large fire increases. Because of this, having additional fire response resources close to the areas where wildfires can occur is important. Additionally, fire agencies, including SDCFA, deploy additional resources during these periods when the possibility for large wildfires increases, so that they have a higher likelihood of controlling them quickly. The potential for wildfires exists currently due to the unmaintained fuels in the Project area and the existing ignition sources. The proposed Project removes a large area of fuel and converts it to ignition-resistant landscape, providing a buffer between existing communities, further separating smoke sources from the existing communities, and providing "eyes and ears" in the area for fast fire detection.

(6) The comment states the direct economic impacts of fire are worsening. This comment does not raise an issue regarding the adequacy of the environmental analysis in the EIR; therefore, no further response is provided.

(7) The comment states the devastating environmental, health, social, and economic costs of poorly planned, leapfrog developments in areas that will burn are too great, such that there is no justification to approving this development. In response, this statement expresses the opinion of the commenter. This comment does not raise an issue regarding the adequacy of the environmental analysis in the EIR; therefore, no further response is provided.

RO-4-67 The comment states the proposed Project would increase wildfire risks that could cause residents to lose their homes and the lives of loved ones and first responders. The comment further states the proposed Project could also worsen public health, destroy native ecosystems, and reduce biodiversity. The commenter concludes the DEIR fails to disclose, assess, or mitigate these potential impacts. In response, the fire analysis for the proposed Project and Alternative H included in the Final EIR is considered appropriate for the proposed development, its fire environment, and anticipated wildfire behavior. Please refer to Response to Comment RO-4-66 for additional details regarding the requirements for building within fire hazard severity zones. Additionally, although the Project site is located in a very high fire hazard severity zone, it will have a significantly lower potential of actual loss than other older communities that are also located in a very high fire hazard severity zone or WUI area. This is based upon the distinction between Hazard (which the State categorizes) and Risk (which the state does not quantify). Hazard is the potential fire behavior (i.e., flame length, crown fire occurrence, capacity to generate embers) in the predicted mature vegetation of the area. Risk, however, is the potential for structural loss from said fire. Thus, even if a potential low fire hazard exists in a given area

(expected low flame lengths), a home might still be at high risk of ignition if the physical characteristics of the property would facilitate structural ignition (e.g., flammable vegetation next to a home with wood siding). Conversely (and more applicable to the proposed Project), a home might be in a high-hazard area (potential exposure to high flame lengths and ember generation), but may actually be at low risk of ignition if the house is built with ignition-resistant construction materials and adequate defensible space is provided around the home, as will be provided for the proposed Project's homes. This type of defensible community would not result in firefighters or residents being put at higher risk as the entire community offers them temporary safe refuge, if needed, and is considered safer than evacuation. For more information, see Response to Comment RO-2-18.

RO-4-68 The comment states the EIR fails to adequately assess wildfire risk and the potential impacts of more fire ignitions from placing homes and people in high fire-prone areas. The comment also references Governor Newsom's Strike Force Report (2019) and a study by Syphard et al. (2019). The comment further states the EIR fails to adequately assess the proposed Project's impacts on wildfire risk by neglecting to use the best available science. Please refer to Response to Comment RO-4-67 for discussion of Hazard vs Risk. Further, the proposed Project's FPP follows the County's Guidelines for Determining Significance – Wildland Fire and Fire Protection (2010), which requires a comprehensive analysis approach. The FPP was prepared by a team of professional fire protection planners, fire prevention officers, and foresters; was then reviewed by the County's fire prevention staff; and was accepted. The FPP utilizes the latest technology regarding fire environment assessment, fire behavior, ignition sources, and fire history evaluation. Using these findings, the FPP develops appropriate fire protection methods relying on code standards for building in fire areas (Chapter 7A of the California Building Code), and defensible space appropriate for buffering ignition and ember-resistant homes from direct flames and heat. Further, the FPP evaluates the needs for fire access and resident evacuation, firefighting water needs, and fire response times and volumes. The proposed Project's EIR relies on this comprehensive evaluation presented in the FPP for making significance determinations; based on the FPP's findings, the EIR's determinations are considered appropriate.

RO-4-69 The comment provides a general discussion of fire history and ignition sources for fires in Southern California. The comment also references various studies. The comment then states "the DEIR simply ignores this ample scientific evidence linking sprawl development in high fire-prone wildlands with increased fire risk" and states the project will place homes exposed to maximum fire susceptibility in areas where fire will inevitably burn. In response, please refer to Response to Comments RO-4-65, RO-4-66, RO-4-67, and RO-4-68 for information regarding the safety of the proposed Project and Alternative H and the extent of evaluation and subsequent fire protection requirements that are imposed on the proposed Project and Alternative H. The proposed Project and Alternative H, like all projects in San Diego County's fire hazard severity and WUI areas, are subject to intensive evaluation of the fire hazard and risk, and then are required, through the fire protection plan, to meet the restrictive fire codes that were developed based on after-fire assessments of why homes were lost to fires and why they survived. The homes built to the latest ignition resistance standards have been shown to perform very well

against wildfire (refer to the FPP [Appendices C-21 and D-21] and IBHS 2008[1]). The proposed Project and Alternative H exceed the existing code by requiring ember-resistant vents because embers have been identified as the leading cause of structure loss from wildfires. Managed fuel modification zones that set unmaintained fuels back at least 100 feet from structures and the ignition resistance of new buildings significantly minimize the risk of heat and flames causing structural ignition. Therefore, protecting from ember penetration and fire spread has become the focus of fire protection planning, and the proposed Project will be built and maintained so that risk from embers are mitigated.

RO-4-70 The comment states EIR fails to disclose that it is located in areas designated by Cal Fire as having high and very high fire hazard severity zones. The comment also refers to a USA Today analysis that ranked the Project area to be in the worst 1% of states in regard to population-to-evacuation ratios. The comment also discusses wildfire history and states that the EIR fails to adequately describe existing wildfire conditions (wildfire history in the Project area). In response, in regard to the fire history discussion in Section 2.6 of the Draft EIR, this section is not included in the 2019 Recirculation Package; however, the County notes the comment. Regarding the fire history discussion in the Alternative H FPP, Section 3.2.4 states that 13 fires burned through or partially onto the Alternative H site since 1910, according to the CAL FIRE Fire and Resource Assessment Program's database. Land area on the site varies in the number of times it has burned, with some portions of the site having burned up to 5 times, while other areas burned fewer times during this period. The discussion also acknowledges the Harris fire. The Fire Environment Analysis, including wildfire history, in the recirculated Alternative H FPP is comprehensive and complete, meeting the requirements of the *San Diego County Guidelines for Determining Significance for Fire Protection* (2010). Regarding the referenced USA Today article, the conceptual formula used in the article does not incorporate site-specific fire environment and development protections that are specific to the proposed Project and protect it from the type of wildfires that may occur in its vicinity.

RO-4-71 The comment states the EIR fails to acknowledge the potential wildfire hazard from increased human-caused ignitions in the Project area. The comment further states the EIR fails to mention the increase of electrical equipment associated with Alternative H. Please refer to Response to Comments RO-4-66 and RO-4-67 regarding human-caused ignitions and the measures provided to minimize both ignitions and spread to off-site fuels. In addition, Alternative H provides an on-site fire station that would be able to provide response to a fire within the Project area and vicinity. All Project-related electrical transmission distribution and feeder lines will be underground, eliminating the potential for vegetation ignitions. The combination of interior sprinklers that are very successful in containing structural fires and the fast response from an on-site fire station minimizes the likelihood that fires igniting in the developed portions of Alternative H would spread off-site. The periods where fire spread would be at highest possibility would be during Red Flag Warning conditions. The Alternative H Homeowner's Association will have an active outreach program, partnering with the on-site firefighters to inform and educate residents about proper protections during these conditions, including avoiding use of outdoor electrical items and

[1] Institute for Business and Home Safety. 2008. *Mega Fires: The Case for Mitigation.* The Witch Creek Wildfire, October 21 – 31, 2007.

gas-powered equipment and preparedness for the possibility that wildfire could occur. The measures detailed in the Alternative H's FPP were considered robust and meeting the County's strict requirements that result in communities that are defensible.

RO-4-72 The comment states the DEIR's mitigation for wildfire impacts is inadequate. The comment further states the EIR's "threadbare mitigation for human ignitions – most of which is already required by law – is insufficient to mitigate the increased risk of human ignitions due to the Project and the increased strain on firefighting resources…." Please refer to Response to Comments RO-4-66, RO-4-67, and RO-4-71 for a discussion of human-caused ignitions and the measures provided to minimize occurrences. The addition of an on-site fire station provides local, fast response to medical and fire calls, including wildfire ignitions near the proposed Project. It would also be one component of an overall wildfire response during a larger event that adds resources for suppression and protection. In response, the wildfire-related impacts for Alternative H were determined to be less than significant with implementation of Environmental Design Considerations, which would result in ignition-resistant, highly defensible communities. The comment regarding fire resistant versus fire proof does not raise a specific issue regarding adequacy of the EIR. Therefore, no further response is required.

RO-4-73 The comment states the EIR does not provide a community protection and evacuation plan; instead, the EIR states a plan will be prepared prior to occupancy. The comment states that this amounts to improperly deferred mitigation. In response, CEQA requires a project to analyze whether the project would impair implementation of or physically interfere with an adopted emergency evacuation plan, not to provide an evacuation plan. A WUI plan will be prepared for the proposed Project by the SDCFA. The WUI is an internal document for emergency responders and will not be released for public review.

RO-4-74 The comment states even if a Community Protection and Evacuation Plan were provided, a public safety or evacuation plan may not be enough to safeguard people and homes from fires. The comment also makes statements regarding wildfires in general, such as the Camp Fire in Butte County, and other fires in California. The comment further states the EIR fails to adequately assess the danger of fast-moving wildfires and mitigate the resulting impacts. Please see Response to Comments RO-2-15 and RO-4-73.

RO-4-75 The comment states a Community Protection and Evacuation Plan should also include evacuation routes, but that, in the chaos of wildfires, designated evacuation routes may not be enough. The comment then makes speculative statements regarding wildfires and evacuations in general. The comment does not raise a specific issue regarding the adequacy of the environmental analysis in the EIR;; therefore, no further response is provided.

RO-4-76 The comment states the language in the EIR is vague regarding educating the community regarding wildfire and there appears to be no mandatory requirement to inform property owners about maintenance of structures, nor is there an enforcement mechanism to ensure property owners are compliant with fire safety regulations. The comment also discusses external fire sprinklers and states the proposed Project does not include this feature. The comment concludes the EIR fails to consider additional feasible mitigation for the proposed Project's wildfire impacts. In response, please refer to Alternative H FPP (Appendix D-21 to the EIR), Section 9.1

regarding Wildfire Education. The section states: "Village residents and occupants of commercial and resort facilities will be provided on-going education regarding wildfire, the CEP, and this FPP's requirements." All of the FPP measures, whether required or recommended, become conditions of the project with the FPP's acceptance by the San Diego County Fire Authority (SDCFA). Regarding exterior fire sprinklers, their use has been considered unnecessary for new homes built to the latest ignition-resistant codes (Chapter 7A of the Fire Code), based on after action loss and save studies. The fact that the exterior fire sprinklers are not required in the code, indicates that the highly ignition-resistant structures required by San Diego County can withstand significant fire without them. Further, they require additional water capacity, require ongoing maintenance and inspections, and are considered more appropriate to protect older homes that are not already hardened per the code and/or cannot provide adequate fuel modification setbacks. The exterior sprinklers may be appropriate in these cases as a mitigation measure but are not necessary in a new, highly ignition-resistant master planned community in San Diego County (National Fire Protection Association Wildfire Research Fact Sheet https://www.nfpa.org/-/media/Files/Firewise/Fact-sheets/FirewiseFactSheetsExteriorSprinklers.pdf).

RO-4-77 The comment states the DEIR fails to adequately assess and mitigate the impacts to special-status species due to increased human-caused ignitions. Please refer to Responses to Comment RO-4-66, RO-4-67, and RO-4-71 regarding the potential for human-caused ignitions and measures to reduce those wildfire risks.

RO-4-78 The comment states the Project area is dominated by chaparral and sage scrub, native California habitats that are adapted to infrequent (every 30 to 150 years) large, intensity crown fire regimes. The comment further states if these regimes are disrupted, habitats are degraded and if fires occur too frequently, type conversion occurs and native shrublands are replaced by non-native grasses and forbs. In response, it is agreed that too frequent occurrence of wildfire will degrade habitat over time and potentially enable non-native grasses to establish, resulting in higher flammability fuels with lower intensity than shrublands. However, as detailed in Alternative H, Section 3.2.4, FPP Fire History, wildfire has burned onto the Project site 13 times since 1910, burning much of the same wildland areas in each fire event. The average interval is less than 8 years over the last 100+ years; however, approximately 1,662 acres of the 1,869-acre Project site remains as chaparral and sage scrub. It is not anticipated that the fire return interval would increase dramatically with the proposed Project's existence, particularly given the measures to minimize the likelihood of ignitions and spread to offsite fuels. Studies indicate that even with older developments that lacked the fire protections provided the Proposed Project, wildfires declined steadily over time (Syphard, et. al., 2007 and 2013) and further, the acreage burned remained relatively constant, even though the number of ignitions temporarily increased. This is due to the conversion of landscapes to ignition resistant, maintained areas, more humans monitoring areas resulting in early fire detection and discouragement of arson, and fast response from the fire suppression resources that are located within these developing areas. While it is true that humans are the cause of most fires in California, there is no data available that links increases in wildfires with the development of ignition resistant communities. The Project will include a robust fire protection system, as detailed in the Project's FPP. This same robust fire protection system provides protections from on-site fire spreading to off-site vegetation. Accidental fires within the landscape or structures in the Project will have limited ability to spread. The landscape

throughout the Project and on its perimeter will be highly maintained and much of it irrigated, which further reduces its ignition potential. Structures will be highly ignition resistant on the exterior and the interiors will be protected with automatic sprinkler systems, which have a very high success rate for confining fires or extinguishing them. The project will be a fire adapted community with a strong resident outreach program that raises fire awareness among its residents. Therefore, potential impacts to special status species would be reasonably anticipated to be negligible. Refer to Responses to Comments RO-4-66, RO-4-67, and RO-4-71 regarding potential for human-caused ignitions and measures to reduce wildfire risk.

RO-4-79 The comment states the DEIR fails to adequately account for the effects of climate change on wildfire risk. The comment further states climate change is creating hotter and drier conditions that make natural areas more vulnerable to human-caused ignitions. The comment then states there is no discussion of climate change and wildland fires in the EIR or the FPP. In response, the FPP evaluates the apex condition for vegetation surrounding the proposed Project. This is considered a worst-case condition that would produce the highest flame lengths. It is speculative at this point to presume future fire conditions based on climate change. Research indicates that vegetation in Southern California may convert to lighter fuels as the result of more frequent fires. This would result from drier, hotter climates where fuels would convert to lighter flashy fuels through repeated wildfires and a change in the fire regime to one with lower intensity and faster spread rates.

RO-4-80 The comment states the EIR fails to adequately assess and mitigate the potential health and air quality impacts from increased smoke from human-caused ignitions. The comment also states that housing extending into fire-prone habitats increases the frequency and toxicity of smoke exposure to communities in and downwind of the fires, which can lead to harmful public health impacts. In response, the proposed Project's landscaped and irrigated areas and fuel modification/ management zones, as well as the paved roadways and ignition-resistant structures, would result in reduced fire intensity and spread rates around the Project vicinity, creating defensible space for firefighters. Additionally, provisions for a fire station on the Project site would meet the County threshold of a 5-minute response time to wildfire ignitions within the proposed Project boundary and increase the likelihood of successful initial attacks that limit the spread of wildfires. This fire station would also become part of the regional fire service delivery plan for the SDCFA for this portion of the County and would support fire and emergency service provision in neighboring communities. Modern infrastructure and the latest ignition-resistant construction methods and materials would be used by Project-related development. Further, all structures are required to include interior, automatic fire sprinklers, consistent with the fire codes. These and other features designed into the proposed Project are discussed more thoroughly in the proposed Project's FPP. The project removes a large area vegetative fuel and converts it to ignition-resistant landscapes. The fire protection measures result in a landscape that is ignition resistant and less likely to result in fire and smoke than the existing condition, which is a mix of vegetation types. Further, these same features that protect the proposed Project, also protect the preserved open space vegetation by providing buffers and modified fuel setbacks in the case that a fire on-site ignites. These buffers minimize the potential for fire to spread off-site. Lastly, the proposed Project represents a large fuel break, providing further separation between existing communities

and a large, preserved fuel bed to the east, reducing potential for smoke and air quality impacts from the existing condition.

Further, the proposed Project would not result in significant impacts attributable to the exacerbation of wildfire risks:

> The potential for wildland fire hazards in and around the Project site is high because planned open spaces and off-site areas are sparsely covered with chaparral and other vegetation, which, when coupled with the seasonal hot and dry conditions in the area, have the potential to create fuel for wildland fires. As stated above, the Project would be constructed in compliance with all applicable fire codes, the applicant has caused an FPP [Fire Protection Plan] to be prepared and compliance with the FPP would be assured during building permit review by the FAHJ [Fire Authority Having Jurisdiction] and San Diego County Fire Authority, and an on-site temporary and permanent fire station would ensure compliance with emergency travel time requirement. As a result, the Project would have a less than significant impact due to wildfires. (2015 Draft EIR, page 2.6-24; see also pages 2.6-20 through 2.6-24.)

While the proposed Project would not exacerbate wildfire risk for the reasons discussed in EIR Section 2.6.2.5, in response to public comment, this response provides background information regarding the pollutant concentrations and effects of wildfire smoke. According to USEPA *Wildfire Smoke – A Guide for Public Health Officials*,[2] wildfire smoke is composed of a mixture of air pollutants of which particulate matter (PM) is the principal public health threat. While particles from wildfire smoke can vary in size, approximately 90% of total PM emitted from wildfires consists of fine particles (i.e., $PM_{2.5}$, particles 2.5 μm in diameter or smaller)[3,4]. The scientific evidence does not indicate that PM generated from wildfire smoke is more or less harmful than PM emitted from other sources[5,6]. The effects of PM exposure range from eye and respiratory tract irritation to more serious disorders, including reduced lung function, bronchitis, exacerbation of asthma, heart failure, and premature death. Short-term exposures (i.e., days to weeks) to $PM_{2.5}$, a major component of smoke, are associated with increased risk of premature mortality and aggravation of pre-existing respiratory and cardiovascular disease. In addition, $PM_{2.5}$ is a respiratory irritant, and exposures to high concentrations can cause persistent cough, phlegm, wheezing, and difficulty breathing.

Ground-level ozone also is affiliated with wildfire, but is less of a concern from wildfires than PM. Ozone can cause effects such as reductions in lung function, inflammation of the airways,

[2] USEPA. 2019. *Wildfire Smoke – A Guide for Public Health Officials*. EPA-452/R-19-901. August.

[3] Vicente A, Alves C, et al. Emission factors and detailed chemical composition of smoke particles from the 2010 wildfire season. Atmospheric Environment 2013; 71:295-303.

[4] Groß, S., Esselborn, M., Weinzierl, B., Wirth, M., Fix, A., and Petzold, A. Aerosol classification by airborne high spectral resolution lidar observations. Atmos. Chem. Phys 2013; 13, 2487–2505. doi:10.5194/acp-13-2487-2013.

[5] U.S. Environmental Protection Agency. (2009) Integrated Science Assessment (ISA) for Particulate Matter (Final Report, Dec 2009). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-08/139F, 2009.

[6] DeFlorio-Barker S, Crooks J, Reyes J, Rappold AG. Cardiopulmonary effects of fine particulate matter exposure among older adults, during wildfire and non-wildfire periods, in the United States 2008-2010. Environ Health Perspect 2019;127(3):37006. doi: 10.1289/ehp3860.

chest pain, coughing, wheezing, and shortness of breath. These effects can be more serious in people with asthma and other lung diseases. Ozone may also affect cardiovascular health.

Carbon monoxide is also present in wildfire smoke. Typically, exposures to carbon monoxide from wildfire smoke do not pose a significant hazard to the public, except to some at-risk populations and firefighters very close to the fire line.

Most healthy adults and children will recover quickly from smoke exposure and will not experience long-term health consequences. However, certain at-risk life stages and populations may be at greater risk of experiencing severe acute and chronic symptoms. Children and populations with pre-existing respiratory and cardiovascular disease should be particularly diligent about taking precautions to limit exposure to wildfire smoke.

It is not feasible to quantitatively assess, for purposes of project-level CEQA analysis, potential health and air quality impacts from increased smoke from a hypothetical wildfire scenario that may be attributed to a human- or natural-caused ignition. To do so would require speculation as to the occurrence, frequency, location, intensity, and duration of wildfire. Smoke levels in populated areas also can be difficult to predict due to their dependence on a suite of local terrain, weather, and fire behavior-based factors (such as fuel loads). As indicated, weather conditions, such as wind, temperature, and humidity, contribute to fire behavior and smoke accumulation. For example, winds bring a fresh supply of oxygen to the fire and push the fire into new fuels. Winds also move smoke away from the fire and contribute to atmospheric mixing, meaning smoke impacts to the public may be lessened near the fire although winds can move smoke long distances into communities far from where the wildfire is burning.

Once smoke enters the atmosphere, its concentration at any one place and time depends on mechanisms of transport and dispersion. Transport refers to whatever process may carry a plume vertically or horizontally in the atmosphere. Vertical transport is controlled by the buoyancy of the smoke plume and stability of the atmosphere. Horizontal transport is controlled by wind. The larger the volume of space that smoke is allowed to enter and the farther it can be transported, the more dispersed and less concentrated it will become. The intense heat generated by an active wildfire drives smoke high into the air where it remains until it cools and begins to descend. As smoke moves downwind, it becomes more diluted and often more widespread, eventually reaching ground level.

Terrain also affects localized weather. For example, as the sun warms mountain slopes, air is heated and rises, bringing smoke and fire with it. After sunlight passes, the terrain cools and the air begins to descend. This creates a downslope airflow that can alter the smoke dispersal pattern seen during the day. These daily cycles sometimes help predict repeating patterns of smoke impacts in communities.

The most common advisory during a wildfire-related smoke episode is to stay indoors, where people can better control their environment. Whether at home or in a public space, indoor environments that have filtered air and climate control can provide relief from smoke and heat. Environmental and public health agencies have advised people to consider setting air conditioners in their homes to recirculation mode, if possible, to reduce the intake of pollutants.

While it is acknowledged that buildings could contain plastics, metals, and various stored chemicals that release toxic chemicals when burned, such as pesticides, solvents, paints, and cleaning solutions, it is not feasible to assess, for purposes of project-level CEQA

analysis, potential health and air quality impacts from the burning of such materials within buildings. To do so would require speculation as to the occurrence, frequency, location, intensity, and duration of wildfire, as well as speculation as to the presence and amount of materials that could release toxic chemicals when burned.

In summary, the proposed Project does not have factors that would exacerbate wildfire risk; as a result, the proposed Project would not expose its occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. While no significant impact would result, it also is noted that there is no model or methodology available that feasibly allows for a quantitative evaluation of a hypothetical wildfire event's smoke-related pollutant concentrations and corresponding health effects.

RO-4-81 The comment states that increased fire frequency due to human activity and ill-placed developments lead to increased occurrences of poor indoor and outdoor air quality from smoke, which can have public health events. The comment also states that various studies have found hospital visits increase during and/or after fire events. The comment concludes the EIR fails to adequately assess and mitigate the proposed Project's potential impacts of increased smoke exposure due to increased human-caused ignition. The County disagrees with the comment's assertion that the proposed Project increases the probability of ignition occurring within its footprint and finds that the previously provided information used to support the assertion does not introduce any substantial evidence supporting the statement. While it is true that humans are the cause of most fires in California, there is no data available that link increases in wildfires with the development of ignition-resistant communities.

This type of development with an unbroken landscape (as opposed to low-density wildland urban intermix projects) has been found to perform well against wildfires (Syphard, et al. 2015: Fires at the Wildland Urban Interface: Lessons from Southern California[7]; IBHS 2008[8]). One study (Balch et al. 2016: Human-started wildfires expand the fire niche across the United States[9]) indicates that there can be initial increase in the "likelihood" of fires, but that this potential decreases as characteristics of the built urban environment and increased suppression efforts reduce it. Additionally, the proposed Project includes managed landscapes and wide fuel modification zones that will provide protection for the proposed Project, but also act as a buffer between on-site fires and the natural vegetation areas. In fact, FMZs were originally established to prevent structure fires from spreading into the wildland areas. Therefore, the dual role of FMZs is designed to minimize the likelihood that on-site fires can move offsite. If an on-site fire resulted in a wildfire downwind of the proposed Project, there is a limited fuel bed that could

[7] Syphard, Alexandra, Jon E. Keeley, Tess Brennan. 2015. "Fire at the Wildland Urban Interface: Lessons from Southern California. Presentation. Available at: https://static1.squarespace.com/static/545a90ede4b026480c02c5c7/t/578d5aad3e00bef453aea6eb/1468881611437/Syphard_WUIFire_AEPApril5_reduced.pdf

[8] Institute for Business and Home Safety. 2008. *Mega Fires: The Case for Mitigation.* The Witch Creek Wildfire, October 21 – 31, 2007. 47 pp.

[9] Balch, Jennifer K. Bethany A. Bradley, John T. Abatzoglou, R. Chelsea Nagy, Emily Fusco, Adam L. Mahood. 2016. *Human-started wildfires expand the fire niche across the United States.* PNAS 114, 11. March.

burn under fire weather conditions, but would be limited in its ability to create a significant wildfire due to the lack of fuel bed area.

Fires that start on site would not have the readily ignitable fuels to sustain or spread within the site's landscapes. Further, structure fires would be effectively contained or suppressed by provided automatic interior fire sprinklers to be fitted in every structure. Combined with the fast response from the on-site station, it would be difficult for an on-site fire to spread to off-site areas before responding firefighters could begin their firefighting tactics. Please refer to Response to Comment RO-4-80regarding potential for exposure of Project occupants to pollutant concentrations.

RO-4-82 The EIR fails to adequately assess and mitigate the impact of increased wildfires on fire protection services and utilities. The comment also states the development would necessitate significant firefighting costs from both state and local authorities. In response, this comment is speculative that the proposed Project will increase the cost to fight wildfires. The DEIR (2015) and the updated Chapter 4.0 Alternatives and associated appendices from the 2019 Recirculation Package address potential impacts to public services. The Public Facilities Financing Plan (Appendix IV to the Specific Plan Area for the proposed Project and Appendix IV to the Specific Plan Area for Alternative H) addresses the financial aspects of the proposed Project and Alternative H.

RO-4-83 The comment discusses fire hazards, longer fire seasons, and working conditions for firefighters throughout the state of California. The comment does not raise an issue regarding the adequacy of the environmental analysis;; therefore, no further response is provided.

RO-4-84 The commenter expresses concerns about the mental state of firefighters being affected from working on active wildfires too often. This comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-85 The comment states the EIR fails to adequately assess and mitigate the impacts to fire protection services. The comment also states that a statement in the FPP for the proposed Project suggests that a permanent fire station may never be built, if funding is not secured. In response, the requirement for a permanent fire station on site will be included in the Conditions of Approval and a Fire Services Agreement' between the Project applicant(s) and the San Diego Rural Fire Protection District (SDRFPD, now SDCFA). The same is true for Alternative H. Further, construction of a permanent fire station would be required in order to meet County's travel time standard from the closest fire station. In response to the commenter's concern over fair share contribution, this would only occur "if SDRFPD [SDCFA] determines that the facility should be expanded to serve other areas." Regarding the commenter's statement regarding operational costs, if the cost of providing fire services on-site exceeds available revenue, the homeowners association will be required to create an ongoing funding mechanism for any costs not covered by tax revenue. The Fiscal Impact Analysis projects the revenue generated by the proposed Project, which is allocated to Fire and Emergency Services. The proposed Project and Alternative H will be required to create a Community Facilities District (CFD) or comparable financing mechanism to fund the difference between the operating expense and revenue for Fire/Emergency Services. The CFD is assessed against the property

owners of the project in perpetuity. Any fair share contribution would be determined by an agreement between the County and Project applicants.

RO-4-86 The comment states if costs are not sufficiently covered by the Developer, California and federal residents end up paying through higher insurance premiums and taxes that support Cal Fire and federal government subsidies and grants for homes in high risk areas. This comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-87 The comment states the EIR fails to adequately assess and mitigate cumulative wildfire impacts of the proposed Project. The comment also refers to developments approved by the County in 2018 that were not included in the EIR's cumulative analysis. Cumulative impacts are addressed under the Hazards section in the EIR and in the FPP, Section 10. Impacts on fire service from each project analyzed in the cumulative impacts analysis are mitigated on a project-by-project basis. The FPP does not analyze specific future projects for cumulative impacts but, based on the fact that each project mitigates its potential impact from wildfires through the strict adherence to fire and building codes along with revenues for enhancing fire response resources in the form of fire fees and tax apportionments, concludes that there is no significant cumulative impact.

RO-4-88 The comment states the EIR's analysis of the proposed Project's water supply impacts is inadequate. The comment states the proposed Project's residences would use far more water than the State average. In response, the commenter does not provide specific examples of why they believe the water supply analysis is inadequate. An Overview of Water Service was prepared for the proposed Project and Alternative H (Appendices C-17 and D-17), Otay Water District (OWD) prepared and approved the Water Supply Assessment and Verification Report (Appendices C-18 and D-18), and water supply was analyzed in the DEIR (2015). This is an appropriate level of analysis of water supply impacts for both the proposed Project and Alternative H. The commenter did not provide quantitative data for their reference to the State average water use, or a reference to a specific source from where they are obtaining this data; therefore, a response cannot be provided to this comment.

RO-4-89 The comment states the DEIR's water supply analysis relies on outdated planning documents. In response, the Final EIR analyzes the impacts of the proposed Project and alternatives to the proposed Project, one of which is Alternative H. The impacts of the proposed Project are analyzed in the DEIR, which was circulated for public review in 2015. The Draft EIR (2015) relies upon information available at the time it was written and is in line with baseline conditions; therefore, revisions are not necessary. Subsequently, Alternative H was identified as an additional alternative and analysis of the impacts of Alternative H is included in Chapter 4 and Appendices D-1 through D-24, which were included in the 2019 Recirculation Package for public review. Potential impacts to regional water supplies for both the proposed Project and Alternative H are adequately disclosed within the Final EIR, which includes the DEIR (2015), its associated appendices, and the 2019 Recirculated Package. The County Board of Supervisors may consider the proposed Project, as described in the 2015 DEIR, Alternative H, or any of the other alternatives include in Chapter 4.0 for approval. The Project Applicant now seeks approval of Alternative H, based on consultation with the Wildlife Agencies.

RO-4-90 The comment states the EIR improperly relies on outdated Urban Water Management Plans (UWMPs). The commenter is referencing information that was not included in the 2019 Recirculation Package and therefore was not eligible for comment during this public review period. The DEIR (2015) was prepared using information available at the time it was written, pursuant with the baseline conditions established by the release of the Notice of Preparation. Therefore, the analysis in the DEIR (2015) does not need to be revised to reflect updated information. However, it has been updated to acknowledge that an updated UWMP has been published.

RO-4-91 The comment states water duty factors used to analyze the proposed Project differ from those used to analyze Alternative H. See Response to Comment RO-4-90.

RO-4-92 The comment states the EIR's analysis of regional water supplies is inadequate. The comment also states general concerns over future conditions in San Diego County. This comment serves as an introduction to comments that follow, which are addressed in the specific Response to Comments RO-4-93 through RO-4-99.

RO-4-93 The comment states the EIR's water supply projections are inconsistent with SDCWA projections. The comment states the EIR's Table 3-1 does not reflect the current SDCWA projections for reliance on MWD water supplies. The comment further states the discrepancy between SDCWA's publicly available data and the data relied on for the proposed Project's water supply analysis is not explained in the EIR. In response, the commenter is correct that SDCWA intends to reduce their reliance on MWD for their water supplies. While the specific amount of water imported from MWD differs between SDCWA's estimates and the estimates found within Appendix D-18, the overall amount of water provided by SDCWA increases over the years. The exact portfolio of suppliers is left to the discretion of SDCWA and will not impact, or be impacted by, the proposed Project or any of its alternatives.

RO-4-94 The comment states the EIR fails to properly acknowledge or assess the uncertainty of future water supplies. The comment also states the EIR anticipates Project demand outstripping supply as soon as 2025 under single dry water year conditions, but the EIR does not provide further detail about SDCWA's carryover storage programs. In response, the table presented on page 3-7 of Appendix D-18 shows regional water demand, not demand from Alternative H alone. Further, SDCWA is an independent agency that will employ various methods to meet water demands. It is beyond the scope of the DEIR to evaluate potential environmental impacts associated with these actions.

RO-4-95 The comment states the County's conclusion that use of carryover storage will reduce or eliminate the impacts associated with water supply shortages is not supported by substantial evidence. The comment further states the EIR's water supply analysis must explain how (and from what sources) SDCWA will develop and maintain carryover capacity sufficient to alleviate water supply shortages. Please see Response to Comment RO-4-94. It is not within the scope of the DEIR to discuss or address specific actions of the SDCWA. The Water Supply Assessment and Verification Report (Appendix D-18) prepared by the OWD determined that sufficient water supplies are available to meet the projected water demands of Alternative H.

RO-4-96 This comment discusses another agency's document, the 2015 UWMP prepared by the SDCWA. This document is outside of the scope of the 2015 DEIR and 2019 Recirculation. The comment does not raise an issue regarding the adequacy of the environmental analysis in the EIR; therefore, no further response is provided.

RO-4-97 The comment states the EIR does not explain the relationship between the emergency supply and carryover storage. The commenter refers to the Emergency Storage Project, conducted by a separate agency, the SDCWA. It is outside the scope of this project's DEIR to explain how reservoir levels are maintained or affected in drought scenarios, as requested by the commenter.

RO-4-98 The comment states the EIR fails to address the regional water supply ramifications of the Lower Basin Drought Contingency Plan. The comment further discusses information from various MWD references. In response, while the Lower Basin Drought Contingency Plan is important for regional water supplies, it is not within the scope of the DEIR (2015) or Recirculation Package (2019) to discuss management decisions that will be made by the MWD in the event of a drought. Water contributions made by water purveyors during drought conditions are not a part of the proposed Project or any of its alternatives; therefore, they do not need to be addressed in the environmental analysis.

RO-4-99 The comment states the EIR must provide an analysis of how MWD will continue to provide imports to SDCWA, particularly in dry years when its obligations under the Lower Basin Drought Contingency Plan (LBDCP) would foreseeably be triggered. The comment further states that the EIR and water supply documents referenced in the EIR do not mention the LBDCP. In response, it is not within the purview of this project-specific EIR to analyze how MWD will provide water to SDCWA. The Water Supply Assessment and Verification Report (Appendix D-18) was written by the OWD and states that an adequate water supply can be provided to the proposed Project. It is beyond the scope of this project-level EIR to designate replacement supplies or analyze impacts associated with those replacement supplies, as it is the responsibility of MWD and SDCWA to determine those things.

RO-4-100 The comment states the DEIR does not adequately address the proposed Project's cumulative impacts on water supply. The comment also addresses UWMPs prepared by the SDCWA. In response, the comment does not raise a specific issue regarding why the water supply cumulative impacts analysis is not adequate. The UWMPs are outside of the scope of the response to comments for this EIR. Therefore, no further response is provided.

RO-4-101 The comment states the list of "near-term annexations" fails to include all development projects currently being considered by the County. The comment also states the EIR's failure to account for general plan amendment-related growth renders the cumulative impacts analysis incomplete. The 2015 DEIR and 2019 Recirculation Package rely on best available data, including what is provided by the SDCWA. What is included in the SDCWA demand forecasts is outside of the scope of the response to comments for this EIR. Therefore, no further response is provided.

RO-4-102 The comment states that, in the context of water supply, periodic UWMP updates will always be playing catch up to the demand created by GPA projects approved since the most recent

population projections. The comment further states that the UWMP's retroactive accounting for GPA-associated demand undermines evidence in support of the EIR's water supply analysis.

RO-4-103 The comment states that the DEIR fails to properly disclose and analyze the potential impacts of the annexation of the Project site to OWD's service area. The comment refers to inconsistencies in the 2015 DEIR itself and the recirculated documents. In response, the 2015 DEIR references annexation of the proposed Project to SDCWA, MWD, and OWD in several locations throughout Chapter 1.0, and Sections 3.3, and 3.7. At the time the 2015 DEIR was written, it was understood that, should OWD adopt an offset program, the proposed Project would be required to comply with that program. However, an offset program was not adopted by OWD and therefore is not referred to in the Overview of Water Services Supplemental Analysis for Alternative H (Appendix D-17) or in the Water Supply Assessment and Verification Report in the 2019 Recirculation Package (Appendix D-18). As stated in the Water Supply Assessment and Verification Report, water supply needs of the project can be met.

RO-4-104 The comment states that the EIR's inadequate water supply analysis and failure to adequately disclose or consider environmental impacts of supplying water to the proposed Project violated CEQA and water code. As described in Responses to Comments RO-4-88 through RO-4-103 above, the environmental analysis in the 2015 DEIR (Chapter 1.0, and Sections 3.3, and 3.7) and 2019 Recirculation Package (Appendices D-17 and D-18) is adequate to determine water supply and demand for the proposed Project and its alternatives. The EIR will not be recirculated again.

RO-4-105 The comment provides conclusionary statements. The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-106 The comment requests the Center for Biological Diversity be included on the notice list for future project updates and notices. In response, the Center will be notified as requested. The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-107 The comment is a letter that was previously submitted during the 2015 public comment period. The letter is responded to in its entirety in Response to Comment O-15. Therefore, no further response is provided here.

RO-4-108 This comment provides a transportation table from another document without any additional detail. The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-109 The comment provides Minute orders for the County of San Diego Superior Court. The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided here.

RO-4-110 The comment provides a copy of a letter that was also submitted separately as a part of the 2019 Public Review Period. This letter has been responded to in full in Response to Comment RO-5. Therefore, no further response is provided.

RO-4-111 The comment provides a Heat Map labeled Confidential, which was originally produced by the County. However, no comment was provided with the map; therefore, no further response is provided.

RO-4-112 The comment provides a conservation value map with the proposed Project Development Footprint. The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-113 The comment provides a letter to the County of San Diego referencing several County of San Diego projects. In response, fire studies, specifically "Fire history of the San Francisco East Bay region and implications for landscape patterns" (Jon E Keeley 2005) actually contradicts the comment's assertion by stating:

> This region has a largely anthropogenic fire regime with no lightning-ignited fires in most years. Fire suppression policy has not excluded fire from this region; however, it has been effective at maintaining roughly similar burning levels in the face of increasing anthropogenic fires, and effective at decreasing the size of fires. Fire frequency parallels increasing population growth until the latter part of the 20th century, when it reached a plateau.

These study findings support other published research indicating that there may be an increase in ignitions with new development, but this condition has a limited life span and the number of ignitions plateaus or declines over time. It also supports research indicating that, even though there may be temporary increases in fire ignitions, the introduction of development, with fire suppression capabilities, like the proposed Project would include, reduces the acres burned from pre-development levels.

Further, the study does not differentiate between new development and its provided fire protection features and the increase in population in the study, which occurred between 1945 and 2002. The majority of the development occurring during the study period would have been vulnerable to wildfires and would not include designated, managed, and maintained fuel modification zones. This study factor is significant since ignition-resistant homes fitted with interior sprinklers reduce the potential for a structure fire and managed landscapes and fuel modification zones provide a buffer that minimizes fire encroachment into a community, but also the potential that fire in the community escapes into adjacent open space.

Land Use Planning and Wildfire: Development Policies Influence Future Probability of Housing Loss. 2013. Alexandra D. Syphard, et al.[10]

The commenter references this study focusing on land use planning relationships to fire risk. The study uses modeling to determine high fire risk areas, determines the likelihood that these areas would develop, and then makes assumptions about homes burning within these areas. The result

[10] Syphard, Alexandra D. Avi Bar Massada, Jon E. Keeley. 2013. *Land Use Planning and Wildfire: Development Policies Influence Future Probability of Housing Loss*. August. https://doi.org/10.1371/journal.pone.0071708

is a ranking of where it is most likely for homes to be at risk, with leapfrog development considered the highest risk.

The study is based on assumptions that are not consistent with new development in San Diego County and at the proposed Project site. The study does not consider the layered fire protection system that is required for new development in fire hazard severity zones. These requirements for ignition-resistant construction, ingress and egress to code, water availability, fast emergency response, and managed fuel modification zones, among many others, are required because they have been shown to work in minimizing the effects of wildfires on structures. The same type of modeling conducted in this study was conducted by Cal Fire to determine where the high fire risk areas are located. Then, ignition-resistant requirements were codified in the California Building Code mandating that homes built in these fire hazard areas be built to these very restrictive standards that harden the exterior of homes from heat, flame, and embers. San Diego County adopted these standards along with even more stringent requirements, as detailed in the Alternative H Project's FPP (Section 7).

These stringent requirements work. As presented in Section 4 of the FPP, as requirements for building in fire hazard severity zones and wildland urban interface areas have iteratively increased structure and landscape ignition resistance, the number of homes damaged or destroyed has declined significantly.

The referenced study acknowledges the use of building and community hardening as an alternative, but summarily dismisses this due to the cost of building homes to these high levels of protection:

> One alternative to traditional fire management that is receiving widespread attention is to prepare communities through the use of fire-safe building materials or creating defensible space around structures. These actions represent an important shift in emphasis from trying to prevent wildfires in fire-prone areas to better anticipating fires that are ultimately inevitable. Nevertheless, the cost of building and retrofitting homes to be fire-safe can be prohibitive…."

Further, the study considers its results as one of a range of options, all of which are already employed in San Diego County and for the proposed Project:

> Land use planning is one of a range of options available for reducing fire risk, and the best outcome will likely be achieved through a combination of strategies that include homeowner actions, improvements in fire-safe building codes, and advanced fire suppression tactics.

These options are all employed at the proposed Project site and additional measures are provided that remove important maintenance from the responsibility of the homeowners to a funded HOA that is then monitored by a third party. The fuel modification zones that are customized for this site and the fire threat presented by off-site fuels would be maintained by the HOA and inspected by a third party to certify that it remains functional at all times.

Lastly, the study recognizes that its modeling is very coarse and not directly applicable throughout San Diego County. It defers to local planners to determine where high risk areas are and, presumably, how to proceed in terms of providing restrictions for safe development:

> Nevertheless, because fire risk is highly variable over space and time, and due to a range of human and biophysical variables [60], we recommend planners develop their own models for the best understanding of where the most fire-prone areas are in their region [19]."

Because the study is not directly comparable with the proposed Project, and the findings actually support the planning and protection provided by Alternative H, the comment raises no new issues with the DEIR or its analysis and, therefore, requires no additional response.

The comment also references human-caused ignitions citing this 2007 study that focused on modeling the relationship between human population and fire ignitions and acreage burned. The study's goal was to "determine how humans influence fire in California and to examine whether this influence was linear, by relating contemporary (2000) and historic (1960–2000) fire data to both human and biophysical variables."

The study concludes that there is a relationship between human presence and fire ignitions, and it is supported by other published research, including Cal Fire's fire history data that lists human-caused ignitions as the leading source. It is important to clarify that this study does not conclude that well-designed, highly ignition-resistant communities are a leading source of ignitions at the wildland urban interface. In fact, the study did not include a component that considered the positive effects that managed landscapes and fuel modification zones along with ignition-resistant structures have on reducing ignitions. Without this comparison, it is difficult to apply this study's results to the proposed Project. Nevertheless, the study found:

> …nonlinear effects such that fire frequency and area burned were highest at intermediate levels of human activity, but declined beyond certain thresholds. Human activities also explained change in fire frequency and area burned (1960–2000), but our models had greater explanatory power during the years 1960–1980, when there was more dramatic change in fire frequency."

This finding seems to indicate that across the study area, there was a marked increase in fire frequency from 1960 to 1980 when populations were rapidly expanding (but fire protection features were not mandatory) and not a strong correlation after 1980, when many jurisdictions began requiring additional measures to protect homes at the WUI, which in turn minimized open space from ignitions within developed areas.

The study suggests that local land planners can utilize findings related to density (high-density development is less prone to fire risk than intermediate levels). This, in fact, has been accounted for at the proposed Project and the majority of the development is high density. Further, the lower-density portions of the proposed Project include HOA-managed fuel modification zones and other restrictions that are consistent with the higher-density areas. This type of development is not accounted for in the study's methodology.

The study also points out that humans not only have a negative or a positive impact on fire occurrence:

> Another explanation for the discrepancy is that relationships between human activities and fire may be nonlinear in that humans may affect fire occurrence positively or negatively, depending on the level of influence. These nonlinear effects were apparent in data from a recent study in the San Francisco Bay region, where population growth was positively related to fire frequency over time up to a point, but then fire frequency leveled off as population continued to increase (Keeley 2005)."

This finding has been reported in other published studies and considers that, as development occurs, flammable vegetation is converted to less flammable, ignition-resistant landscapes, there are more humans present on a daily basis to monitor and discourage would-be arsons, and there are typically fire suppression resources and an increase in accessibility to wildland fuel interface areas. The proposed Project provides all of these benefits.

The study provides additional findings that support the notion that humans' influence on fire risk may be less significant than reported:

> Therefore, human effects on area burned may cancel one another out to some extent because fire suppression can minimize the increase in area burned that would result from increased ignitions, at least at the WUI."

The study indicates that there have been varying impacts of human activities on the change in fires in the study area.

> The second question we asked was 'How do human activities relate to change in fire?' In the last 40 years, the most substantial change was the increase in number of fires from 1960 to 1980. The decrease in number of fires was less dramatic between 1980 and 2000; and the change in area burned was relatively small in both time periods. Housing development patterns were most influential when change was greatest, from 1960 to 1980, and for trends in fire frequency (vs. area burned)."

This statement indicates that the most recent data suggest a decrease in the number of fire starts between 1980 and 2000 and very little change in overall acreage burned. Therefore, despite a documented increase in human-caused fire starts, the number of acres burned has been virtually unaffected. This supports the stance that early fire detection and reporting and fast response from a nearby fire station limits fire spread and minimizes damage to wildland areas while the provided protections at master planned communities minimize risk to persons and their property. As indicated in the study: "…it appears that when human population density and development reach a certain threshold density, ignitions decline, and this is likely the result of diminished and highly fragmented open space with fuels insufficient to sustain fire. In addition, above a certain population threshold, fire suppression resources are likely to be more concentrated in the WUI." This accurately describes the proposed Project and supports the site-wide landscape conversions

that avoid co-mingling of unmaintained fuels and provides fire suppression resources within a short timeframe from all proposed Project areas.

Because the study is not directly comparable with the proposed Project, and the findings do not conflict with the planning and protection provided the proposed Project, the comment raises no new issues with the DEIR or its analysis and, therefore, requires no additional response.

RO-4-114 The comment provides a water supply table from a SDCWA document. The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-115 The comment provides water levels at reservoirs and lakes from the City of San Diego's website. The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-116 The comment provides an excerpt from *On the Winds of Checkerspots: A Model System for Population Biology*. The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-117 The comment provides a journal article on general metapopulation models and the core-satellite species hypothesis. The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-118 The comment provides a journal article on the Bay checkerspot butterfly. The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-119 The comment provides a journal article on the Bay checkerspot butterfly. The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-120 The comment provides a journal article on sink populations. The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-121 The comment provides a journal article on the Quino checkerspot butterfly. The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-122 The comment provides a journal article on rainfall, resources, and dispersal. The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-123 The comment provides a journal article on microhabitat conditions. The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-124 The comment provides a journal article on the Quino checkerspot butterfly. The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-125 The comment provides a journal article on changing distribution patterns. The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-126 The comment provides a journal article on the population dynamics of the checkerspot butterfly (*Euphydryas editha*). The comment does not raise an issue regarding the adequacy of the environmental analysis;; therefore, no further response is provided.

RO-4-127 The comment provides the USFWS Recovery Plan for the Quino Checkerspot Butterfly. The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-128 The comment provides the USFWS 5-year Review for the Quino Checkerspot Butterfly. The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

RO-4-129 The comment provides a journal article titled "The Trouble with Butterflies." The comment does not raise an issue regarding the adequacy of the environmental analysis; therefore, no further response is provided.

Attachment RO4.1

PROGRAM

PROJECTS

PROTOCOLS

FUTURE PROTOCOL DEVELOPMENT

- Submit A Project Concept
- **Criteria For Protocol Development**
- Past Project Concept Submissions
- Issue Papers

VERIFICATION

TRAININGS

CALIFORNIA COMPLIANCE OFFSET PROGRAM

OFFSETS MARKETPLACE

Criteria for Protocol Development

The Reserve takes into consideration a number of issues when assessing a project type for protocol development, including those listed below. Although a prospective project type does not necessarily need to fully satisfy all of these criteria, it should be a good "fit" with most of them. In addition, submitters of new project concepts are encouraged to review the Reserve's existing protocols to better understand the general topics that must be covered and the requirements that must be met for any protocol. Assessment criteria for new project concepts include the following.

Whether GHG Reductions Occur Outside Proposed U.S. Caps on GHG Emissions
Since issuing offset credits for reductions that occur at capped emission sources would result in double counting, the Reserve focuses on project types affecting greenhouse gas (GHG) emissions that are unlikely to be capped. In California, for example, an economy-wide cap-and-trade system is being implemented that will ultimately cover all fossil fuel-derived CO_2 emissions. Projects that would reduce CO_2 emissions from fossil fuel combustion are therefore not being considered for offset protocol development.

Whether GHG Reductions Are Direct or Indirect
Direct emission reductions are those that occur at sources (or sinks) that are directly owned or controlled by the project developer, i.e., the entity that will operate the project and receive Climate Reserve Tonnes (CRTs). All else equal, the Reserve will focus on project types that result in direct reductions. Direct emission reductions are generally easier to verify because the sites where they occur can be easily accessed and directly monitored. When emission reductions occur at sites or sources owned by the project developer, there is also less risk that an entity other than the project developer will claim ownership of the reductions. Thus, these projects are unlikely to be at risk for double counting or ownership issues.

Whether GHG Reductions Are Likely To Be Additional
"Additionality" is a critically important criterion for carbon offsets (see Section 1.2 of the Reserve Program Manual). In general, the Reserve will not develop protocols for project activities that are implemented regularly under "business as usual" circumstances (i.e., in the absence of carbon offset program incentives). When submitting a project concept to the Reserve, it will often be helpful to: (1) identify general barriers (including financial) that currently exist to the implementation of the proposed project type; (2) explain how carbon offset revenues would enable projects to overcome these barriers and allow greater levels of implementation. A detailed financial characterization for a typical project can help to establish whether there is significant potential in developing a carbon offset protocol.

In addition, no project type is will be eligible under the Reserve's program if the project activity is required by law (federal, state or local). Project types for which the regulatory environment is uncertain may receive a lesser priority in terms of protocol development.

Whether Standardized Additionality and Baseline Determinations are Possible
A core objective of the Climate Action Reserve is to adopt "standardized" approaches to offset crediting. Standardized offset crediting has two main elements:

1. Determining the eligibility and additionality of projects using standard criteria, rather than project-specific assessments
2. Quantifying GHG emission reductions using standard baseline assumptions, emission factors, and monitoring methods

For more information on standardized offset crediting, please see Section 2.1.1 of the Reserve Program Manual. For some types of projects, it will be difficult to credibly and accurately determine additionality and estimate baseline emissions using standardized criteria and parameters. In general, the Reserve will not prioritize protocol

development for these project types. A project type may nevertheless be considered if it is possible to combine standardized additionality assessments with project-specific quantification methods, or where the scope of a protocol can be limited to address only activities and conditions for which standardized approaches are feasible.

Whether There is Significant U.S. Potential for Reducing GHG Emissions
Because it takes significant effort and resources to produce a standardized protocol, the Reserve will prioritize project types that, if fully implemented, would result in large and geographically diverse GHG reductions. However, because the Reserve is focused on U.S. reduction opportunities, protocols that cover GHG reductions in other countries will generally not be considered.

Whether Well-Developed Quantification Methodologies Are Available
Protocols are more easily developed where sound scientific methods already exist to determine baselines and quantify emission reductions. Although the Reserve does not directly adopt methodologies developed by other organizations (all of its protocols are developed and finalized through public, transparent stakeholder processes), it will prioritize project types for which well-developed and vetted GHG quantification methods already exist.

Whether High Quality Data Are Available for Quantification and Establishing Additionality Thresholds
High quality datasets are necessary to establish accurate quantification parameters, as well as to evaluate "business as usual" activities for the sector in which the project activity occurs. Setting performance thresholds and other standardized tests for additionality requires robust and transparent data on the current state of the sector.

Whether Accurate and Cost-Effective Measurement and Monitoring Techniques Are Available
It is essential to accurately quantify the GHG reductions that will be used for carbon offsets. Accurate quantification depends on accurate measurement and monitoring of a project's effects on GHG emissions. In some cases, accurate measurement techniques may be unavailable or prohibitively expensive. If the monitoring and measurement techniques are too complex or infeasible, a project type may be rejected for protocol development.

Whether Projects Would Have Positive or Negative Environmental and Social Co-Effects
All else equal, the Reserve will prioritize project types that can create significant co-benefits for the habitats and communities where projects take place. Project types that may cause, or be associated with, significant negative social and environmental impacts will be avoided. Please see Section 2.4.6 of the Reserve Program Manual for further information on the Reserve's policies on project co-benefits and harms.

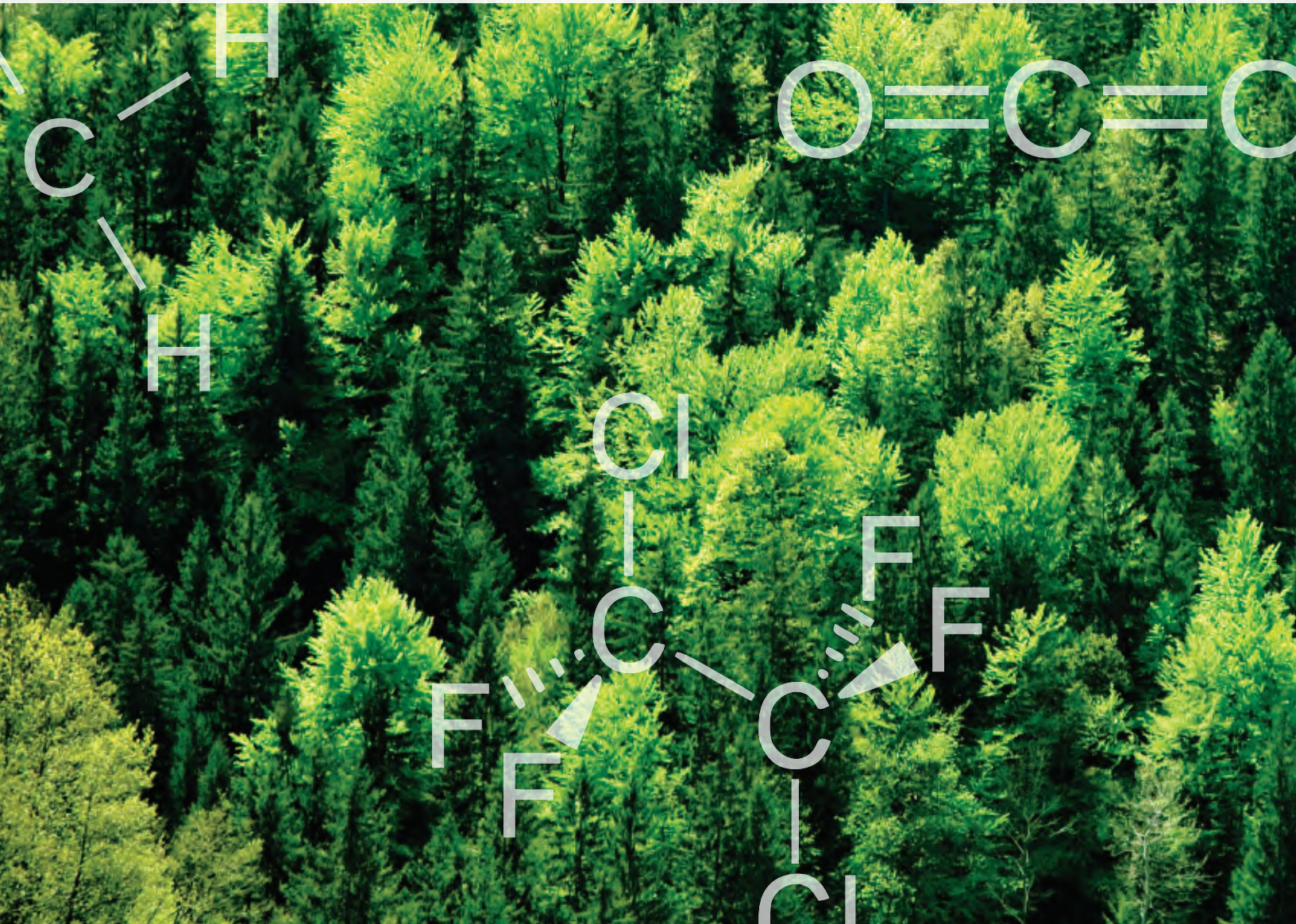
If you have questions about protocol development, please contact the Policy Team.

Attachment RO4.2

CLIMATE ACTION RESERVE

Program Manual

September 1, 2015



NOTE TO USERS:

From time to time, the Climate Action Reserve updates this manual. Please make sure you are using the latest version, available at www.climateactionreserve.org.

For information, comments or questions, please email policy@climateactionreserve.org.

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Released September 1, 2015

Climate Action Reserve
Program Manual

1 Introduction

The voluntary carbon market has the potential to significantly facilitate efforts to reduce greenhouse gases in the atmosphere and to help mitigate climate change. At the same time, there has been a great need for increased environmental integrity, transparency, rigor, and accuracy in this market. The Climate Action Reserve (Reserve) was created to meet this need by providing a rigorous set of protocols, guidelines, and tools to support the voluntary carbon market. The Reserve is intended to increase certainty and build confidence in the greenhouse gas (GHG) reduction market on the part of investors, project developers, the environmental community, and the public.

This Program Manual summarizes the Reserve's overarching principles, its general project accounting guidelines, and its rules and procedures for registering projects and creating offset credits for the voluntary market. It also describes the process used by the Reserve to develop protocols for determining the eligibility of, and quantifying reductions from, carbon offset projects.

Detailed information on the Reserve's general operating procedures and verification program can be found in the following documents:

- Climate Action Reserve Operating Procedures
  http://www.climateactionreserve.org/open-an-account/
- Climate Action Reserve Terms of Use
  http://www.climateactionreserve.org/open-an-account/
- Climate Action Reserve Verification Program Manual
  http://www.climateactionreserve.org/how/program/program-manual/

Guidance in this Program Manual is limited to the Reserve's program serving the voluntary carbon market. For information on the Reserve's role as an Early Action Offset Program and Offset Project Registry for the California Compliance Offset Program, please see the following resources:

- Climate Action Reserve California Compliance Offset Program website
  http://www.climateactionreserve.org/how/california-compliance-projects/
- California Air Resources Board Compliance Offset Program website
  http://www.arb.ca.gov/cc/capandtrade/offsets/offsets.htm

1.1 The Climate Action Reserve

The Climate Action Reserve is a national offsets program working to ensure integrity, transparency, and financial value in the U.S. carbon market. It does this by establishing regulatory-quality standards for the development, quantification, and verification of GHG emission reduction projects in North America; issuing carbon offset credits known as Climate Reserve Tonnes (CRTs) generated from such projects; and tracking the transaction of credits over time in a transparent, publicly-accessible system. Adherence to the Reserve's high standards ensures that emission reductions associated with projects are real, permanent, and additional, thereby instilling confidence in the environmental benefit, credibility, and efficiency of the U.S. carbon market.

At the heart of the Reserve is a publicly accessible web-based system where owners and developers of carbon offset projects can register project information along with verification

reports demonstrating GHG emission reductions. Emission reductions are verified as CRTs, which provide title assurance and unique serial number identifiers to assure that each metric ton is counted and retired only once.

The Reserve uses a rigorous, open, and comprehensive process for developing all of its protocols. The Reserve's primary focus is on accurate and conservative GHG accounting to ensure that the emission reductions it certifies are real, permanent, additional, verifiable, and enforceable.

1.2 Reserve Program Principles

The Reserve's program rules and procedures, eligibility criteria, and quantification and verification protocols are designed to ensure that GHG emission reductions certified by the Reserve are:

- **Real:** Estimated GHG reductions should not be an artifact of incomplete or inaccurate emissions accounting. Methods for quantifying emission reductions should be conservative to avoid overstating a project's effects. The effects of a project on GHG emissions must be comprehensively accounted for, including unintended effects (often referred to as "leakage").
- **Additional:** GHG reductions must be additional to any that would have occurred in the absence of the Climate Action Reserve, or of a market for GHG reductions generally. "Business as usual" reductions – i.e. those that would occur in the absence of a GHG-reduction market – should not be eligible for registration.
- **Permanent:** In order to function as offsets to GHG emissions, GHG reductions must effectively be "permanent." This means, in general, that any net reversal in GHG reductions used to offset emissions must be fully accounted for and compensated through the achievement of additional reductions.
- **Verified:** GHG reductions must result from activities that have been verified on an *ex post* basis. Verification requires third-party review of monitoring data for a project to ensure the data are complete and accurate.
- **Owned Unambiguously:** No parties other than the registered project developer must be able to reasonably claim ownership of the GHG reductions.

In addition, the Reserve strives to ensure that the offset projects it registers are **not harmful**. Project activities should not cause or contribute to negative social, economic or environmental outcomes and ideally should result in benefits beyond climate change mitigation.

Finally, the Reserve strives for **practicality**, by integrating rigorous requirements with time- and cost-minimizing steps for project developers. Practicality involves alleviating potential barriers to GHG project implementation without compromising credibility.

2 Program Level GHG Reduction Accounting Guidelines

The Reserve develops protocols specifying eligibility criteria and detailing steps to estimate, monitor, and verify GHG reductions achieved by specific types of projects. While each project protocol contains guidance specific to individual project types, Reserve protocols also adhere to general project accounting principles. This section describes the Reserve's standardized project accounting guidelines that are the foundation for all project protocols.

2.1 General Approach, Principles, and References

The Reserve strives to develop protocols that are "standardized" in nature, meaning they apply standardized factors and eligibility rules to the extent possible while maintaining sufficient rigor and accuracy. In addition, the form and content of Reserve protocols follow internationally established accounting principles and standards.

2.1.1 Standardized Offset Crediting

A core objective of the Climate Action Reserve is to adopt "standardized" approaches to offset crediting. Standardized offset crediting has two main elements:[1]

1. Determining the eligibility and additionality of projects using standard criteria, rather than project-specific assessments.
2. Quantifying GHG emission reductions using standard baseline assumptions, emission factors, and monitoring methods.

The main goal of standardized offset crediting is to minimize the subjective judgment required in evaluating whether a project should receive credit for emission reductions, and in determining how much credit it should receive. Compared to project-specific assessment and analysis, standardized crediting reduces transaction costs for project developers, alleviates uncertainties for investors, and increases the transparency of project approval and verification decisions. Furthermore, the Reserve believes that appropriately designed standardized protocols can be as rigorous as project-specific approaches in ensuring additionality and environmental integrity (see Section 2.4.1 below for further discussion of standardized additionality tests).

Three challenges with standardized crediting are worth noting. First, developing standardized methods for determining additionality and estimating baselines requires significant upfront research and analysis. In order to avoid the need for extensive data collection and analysis on a project-by-project basis, the Reserve invests significant time and resources to establish credible benchmarks and emission factors that can be applied to similar projects throughout an entire industry or sector. The Reserve may frequently build off existing project-specific methodologies, but in general will augment these methodologies with further analysis to establish standardized tests and metrics.

Second, because "business as usual" activities can vary significantly across different geographic areas, standardized benchmarks and factors for one region will not necessarily be appropriate for other regions. Therefore, standardized protocols will almost always apply to a specific, limited geographic area. Every Reserve protocol specifies the geographic region(s) to which it applies. In adapting protocols for other geographic regions, the Reserve engages in a

[1] For further reference, see Broekhoff, D., 2007. *Expanding Global Emissions Trading: Prospects for Standardized Carbon Offset Crediting*. International Emissions Trading Association, Geneva.

full stakeholder process designed to assess and incorporate region-specific benchmarks and factors.

Third, not all possible offset project types are equally amenable to standardized crediting.[2] For some types of projects, determining additionality and estimating baseline emissions cannot be done credibly and accurately on a standardized basis. In general, the Reserve will avoid developing protocols for these project types. Alternatively, the Reserve may incorporate project-specific methods or variables into standardized protocols as appropriate, or limit the scope of protocols to address only activities and conditions for which standardized approaches are feasible.

2.1.2 Reference Standards

The Reserve's offset project protocols are designed to be consistent with the principles, requirements, and guidance of two overarching standards for project-based GHG accounting:[3]

- International Organization for Standardization (ISO) 14064, Part 2
- The World Resources Institute/World Business Council for Sustainable Development (WRI/WBCSD) Greenhouse Gas Protocol for Project Accounting

Both standards contain consistent general requirements for quantifying reductions in GHG emissions (or increases in carbon sequestration) that result from project-based activities, including requirements for:

1. Establishing GHG accounting boundaries
2. Estimating baseline emissions
3. Determining project-case emissions
4. Monitoring project activities

Although the ISO and WRI/WBCSD standards are largely consistent in their basic requirements, they have different terminologies and structures. Reserve protocols may utilize terminology from either or both standards depending on circumstances. The structure and general content of Reserve protocols are presented in the remainder of this section.

2.2 GHG Accounting Principles

There is now strong international consensus around a core standard set of overarching principles to guide decisions about the accounting, quantification, and reporting of project-based GHG reductions. These consensus principles are listed and defined in both the ISO and WRI/WBCSD standard referenced above. Definitions of these principles differ slightly between the two standards; the Reserve interprets the principles as follows in developing its protocols:

- **Relevance:** Data, methods, criteria, assumptions, and accounting boundaries should be chosen based on their "intended use." For the Reserve, this means protocols are

[2] Ibid.
[3] International Organization for Standardization, 2005. *ISO 14064, Part 2*: *"Specification with guidance at the project level for quantification, monitoring, and reporting of greenhouse gas emission reductions or removal enhancements."* International Organization for Standardization, Geneva, Switzerland; World Resources Institute and World Business Council for Sustainable Development, 2005. *The GHG Protocol for Project Accounting*, World Resources Institute, Washington, DC.

designed around standardized, practical approaches to GHG accounting while still adhering to other core accounting principles.

- **Completeness:** All relevant information should be considered when developing criteria and procedures, and all relevant GHG emissions and removals should be accounted for. Reserve protocols comprehensively identify the GHG sources, sinks, and reservoirs affected by project activities and require accounting for all significant changes in GHG emissions or removals that may result from a project. Where there are multiple baseline possibilities, protocols must thoroughly address identification and quantification methods for each possibility.
- **Consistency:** Data, methods, criteria, and assumptions should allow meaningful and valid comparisons of the GHG reductions achieved by different projects. Reserve protocols are standardized to apply consistent GHG accounting and monitoring methods to all projects of the same type. Reserve protocols are also designed to reflect similarly rigorous and conservative accounting methods and assumptions for all project types.
- **Transparency:** Sufficient information should be disclosed to allow reviewers and stakeholders to make decisions about the credibility and reliability of GHG reduction claims with reasonable confidence. Access to sufficient and appropriate GHG-related information is critical for assuring users of the Reserve that a project's GHG reduction claims are credible. To this end, the Reserve uses an open, consultative process for developing protocols; makes protocols publicly available; requires regular, rigorous, and complete reporting from registered projects; and provides a publicly accessible database detailing all relevant information used to quantify GHG reductions for each registered project. In addition, the Reserve's standardized protocols reduce ambiguities associated with how project-related information is interpreted.
- **Accuracy:** Uncertainties and bias should be reduced as far as is practical. Greater accuracy in estimating GHG emissions and reductions will help ensure credibility of GHG reduction claims. Reserve protocols require that quantification of GHG reductions and monitoring of GHG emissions and other variables be conducted within acceptable levels of uncertainty. All GHG reduction estimates must pass rigorous review by an independent verification body. Where accuracy is difficult to achieve, Reserve protocols will err on the side of being conservative with GHG reduction estimates.
- **Conservativeness:** Conservative assumptions, values, and procedures should be used to ensure that GHG reductions are not over-estimated. Reserve protocols employ conservative estimation methods whenever data and assumptions are uncertain and measures to reduce uncertainty would be impractical.

2.3 Project Definition

A GHG project is a specific activity or set of activities intended to reduce GHG emissions, increase the storage of carbon or enhance GHG removals from the atmosphere.[4] A GHG project is considered to be a "carbon offset" project if the GHG reductions or removals it generates are used to compensate for GHG emissions occurring elsewhere.[5] Projects that meet the Reserve's standards are issued emission reduction or removal credits, and those credits act as offsets when they are certified and retired in the Reserve's online registry. The Reserve's primary purpose is to certify GHG reductions as carbon offsets.

[4] World Resources Institute (WRI), World Business Council for Sustainable Development (WBCSD), 2005. *The GHG Protocol for Project Accounting*. World Resources Institute, Washington, D.C.
[5] Offset Quality Initiative, 2008. *Ensuring Offset Quality: Integrating High Quality Greenhouse Gas Offsets Into North American Cap-and-Trade Policy*. Available at: http://www.offsetqualityinitiative.org/.

Every Reserve protocol clearly defines the type of activity (or activities) that constitute a GHG reduction project. A clear project definition ensures that GHG quantification methods prescribed by the protocol are applied only where they are relevant and appropriate. The "project definition" section of each protocol specifies the kinds of activities that must be undertaken to reduce GHG emissions (or increase removals), the required conditions that must be met for these activities, and the necessary elements of project design and implementation.

2.3.1 Project Types

The Reserve only registers GHG projects that follow project protocols that have been developed by the Reserve. In other words, only projects meeting the requirements of project protocols that have been approved and adopted by the Reserve's Board are eligible for registration on the Reserve. The Reserve may establish linkages with additional programs in the future to allow other projects to be registered.

Approved project protocols and information on additional project protocols in development are available for download at http://www.climateactionreserve.org/how/protocols/.

2.4 Project Eligibility Criteria

Eligibility criteria specify essential characteristics a project must have in order to register with the Reserve, as well as the conditions under which the Reserve will issue CRTs to a project. In Reserve protocols, eligibility criteria serve three main purposes:

1. To ensure that baseline estimation methods and emission factors prescribed by the protocol are relevant and appropriate. Reserve protocols use standardized baseline estimation methods that are calibrated to specific geographic regions; to be eligible, projects must be located in an appropriate geographic region.
2. To ensure that projects are "additional." To test for additionality, the Reserve employs objective criteria designed to distinguish additional projects from those that would have happened anyway (i.e. in the absence of an offset market). These criteria fall into two categories: (1) a legal requirement test, and (2) a performance standard test. These tests are explained and described further below.
3. To ensure that projects adhere to all applicable laws and do not cause adverse environmental, social or economic impacts.

Generally, the Reserve seeks to specify eligibility criteria that are as standardized and objective as possible. This means that criteria will be designed to require a minimum amount of subjective judgment in determining whether a project is eligible.

2.4.1 Additionality Determinations

Within existing carbon offset programs, there are two basic approaches to determining "additionality": project-specific and standardized. The Reserve applies a standardized approach to determining additionality, where performance standards and other conditions or criteria that projects must meet in order to be considered additional are determined by the Reserve. These standards and criteria are established separately for each project type, and are designed to exclude non-additional (or "business as usual") projects from eligibility. In all cases, projects that are required by law or regulation are excluded. Other criteria and conditions are specified in each project protocol.

This approach differs from some other offset programs, where additionality is assessed using information and analysis specific to each project (see Box 1). It avoids the need to subjectively interpret individual project developers' assertions about additionality, and sends a clear signal to market participants about which projects will be eligible and which ones will not. Like any testing method, however, it is potentially subject to error. The Reserve strives to establish rigorous standards for additionality that serve to exclude the vast majority of non-additional projects. At the same time, the Reserve acknowledges that no system of testing for additionality is perfect, and it reserves the right to update and modify additionality criteria over time in light of new data and information.

Box 1. Project-Specific vs. Standardized Additionality Tests

Project-specific approaches to determining additionality seek to assess, by weighing certain kinds of evidence, whether a project in fact differs from a hypothetical baseline scenario in which there is no carbon offset market. Generally, a project and its possible alternatives are subjected to a comparative analysis of their implementation barriers and/or expected benefits (e.g. financial returns). If an option other than the project itself is identified as the most likely alternative for the "business as usual" (or "baseline") scenario, the project is considered additional. The Kyoto Protocol's Clean Development Mechanism (CDM), a global carbon offset program for projects in developing countries, requires project-specific additionality tests.

Standardized, or performance-based, approaches to additionality evaluate projects against a consistent set of criteria designed to exclude non-additional projects and include additional ones on a sector-wide basis. For example, standardized tests could involve determinations that a project:

- Is not mandated by law
- Exceeds common practice
- Involves a particular type of high-performing technology
- Has an emission rate lower than most others in its class (e.g. relative to a performance standard)

From a regulatory perspective, standardized performance-based additionality tests are advantageous in that they are less subjective and administratively easier to implement than project-specific tests. Additionally, they can reduce transaction costs for project developers, alleviate uncertainties for investors, and increase the transparency and consistency of regulatory decisions. For further discussion of these two approaches, see Broekhoff, D., 2007. *Expanding Global Emissions Trading: Prospects for Standardized Carbon Offset Crediting*. International Emissions Trading Association, Geneva.

The Reserve incorporates standardized additionality tests in all of its protocols. These tests generally have two components: a legal requirement test and a performance standard test.

2.4.1.1 Legal Requirement Test

Projects are very likely to be non-additional if their implementation is required by law. A legal requirement test ensures that eligible projects (and/or the GHG reductions they achieve) would not have occurred anyway in order to comply with federal, state or local regulations, or other legally binding mandates. A project passes the legal requirement test when there are no laws, statutes, regulations, court orders, environmental mitigation agreements, permitting conditions or other legally binding mandates requiring its implementation, or requiring the implementation of similar measures that would achieve equivalent levels of GHG emission reductions.

In Reserve protocols, the specific provisions of the legal requirement test may differ depending on the project type. During protocol development, the Reserve performs a review of existing and pending regulations to identify any specific regulatory requirements that would mandate the implementation of project activities covered by the protocol. If such requirements are identified, then project activities in relevant jurisdictions may be categorically excluded from eligibility.

In addition, Reserve protocols require project developers to review and determine whether federal, state or local regulations and other legal requirements (including local agency ordinances or rulings) require the implementation of their project. This review is always required at the time a project is registered and may be required each verification period thereafter depending on the protocol. Generally, Reserve protocols will stipulate the following:

- Project monitoring plans must include procedures that the project developer will follow to periodically ascertain and demonstrate that the project passes the legal requirement test.
- Project developers must submit a signed Attestation of Voluntary Implementation form stipulating that the project is not required by law.

2.4.1.2 Performance Standard Test

Projects that are not legally required may still be non-additional if they would have been implemented for other reasons, e.g. because they are attractive investments irrespective of carbon offset revenues. Performance standard tests are intended to screen out this potential set of projects. In developing performance standards, the Reserve considers financial, economic, social, and technological drivers that may affect decisions to undertake a particular project activity. Standards are specified such that the large majority of projects that meet the standard are unlikely to have been implemented due to these other drivers. In other words, incentives created by the carbon market are likely to have played a critical role in decisions to implement projects that meet the performance standard.

Although performance standard tests do not require individual project assessments of financial returns and implementation barriers, they are designed to reflect these factors in determining which projects are additional. Projects that pass a performance standard test should be those that – in the absence of a carbon offset market – would have insufficient financial returns or would face other types of insurmountable implementation barriers.

In Reserve protocols, performance standards may be specified in several ways:

- *Emission rate thresholds*. For some project types, a performance standard may be specified in terms of a rate of GHG emissions (usually per unit of production of some product or service, e.g. tonnes of CO_2 per megawatt-hour). Generally, the threshold rate would be based on a level of performance that is significantly better than average for the industry or sector. Projects that have lower emission rates than the threshold, for example, would be considered additional.
- *Practice- or technology-based thresholds*. Performance standards may also be specified in terms of a specific practice or technology that is rarely or never implemented in the absence of a carbon offset market. Such standards are generally based on surveys of the market penetration rates of candidate practices or technologies. Projects employing a qualifying technology or practice are automatically considered additional.
- *Other qualifying conditions or criteria*. Performance standards may also incorporate, or be based on, other specific qualifying conditions that a project must meet in order to be

considered eligible. Conditions may include characteristics related to the project site, specifications for a particular eligible technology or practice, or other contextual factors. Projects meeting the conditions would be considered additional.

Several specifications may be combined in a single performance standard test. For example, a protocol may define a performance standard in terms of a specific type of technology that has an emission rate below a certain threshold and is implemented at an eligible project location.

Performance standard tests are developed through extensive analysis of standard practices and technology deployment in industry sectors related to a project type. They may also be based on an assessment of "typical" financial, implementation, and operating conditions facing a certain type of project. Most Reserve protocols contain an appendix explaining and summarizing the analyses undertaken to establish the protocol's performance standard.

The Reserve has no predefined threshold for determining an acceptable performance standard. Rather, establishing performance standards involves balancing the need to restrict eligibility for non-additional projects with the goal of allowing additional (and otherwise eligible) projects to participate. Setting a threshold always involves making tradeoffs between these two goals, and may also involve considerations about the size of the market for carbon credits and the potential supply of reductions available from certain project types.[6] See Box 2 for further discussion and a hypothetical example.

Box 2. Determining Acceptable Performance Standard Thresholds

A common rule of thumb for establishing performance standards is that they should make eligible only technologies or practices that are not "common practice." However, "common practice" is often difficult to define. Instead of adopting a simple rule for defining "common practice" (as a threshold market penetration rate, for example) the Reserve requires setting performance standards based on an overall assessment of the market for GHG reductions and the risk of crediting too many non-additional reductions.

For example, suppose a particular emission-reducing technology has a market penetration rate of five percent. Colloquially, such a technology would not be considered "common practice." However, if a threshold were established allowing all instances of this technology to be eligible for offset crediting, we could expect existing users of the technology to apply for credit despite the fact that they were employing it already, without any incentives from the carbon market. This will have consequences for the integrity of the carbon market. Whether such consequences are serious depends on the potential supply of reductions from this technology compared to overall demand for reductions. If five percent of the market would result in hundreds of millions of tonnes of GHG reductions, for example, then a simple technology-based threshold would be too lenient, and the Reserve would explore using additional criteria that could further exclude "business as usual" instances of the technology despite its relative rarity. If five percent of the market would result in only a few thousand tonnes of GHG reductions, then the Reserve may consider a simple technology-based threshold acceptable.

[6] For further discussion of setting thresholds and establishing the parameters for additionality tests, see Trexler, M., D. Broekhoff, and L. Kosloff, 2006. "A Statistically-Driven Approach to Offset-Based GHG Additionality. Determinations: What Can We Learn?" in *Sustainable Development Law & Policy*, Volume VI, Issue 2, Winter 2006.

2.4.2 Project Location

Projects throughout the United States are eligible to be registered with the Reserve. Some project types are also eligible in Mexico. Project developers should check the project location eligibility requirements specified in each project protocol.

2.4.3 Project Start Date

In general, the start date for a project will correspond to the start of the activity that generates GHG reductions (sometimes referred to as "start of operations"). Specific requirements for determining the start date of a project are contained in each protocol.

The Reserve limits the eligibility of projects according to their start dates. Start date restrictions are intended to accommodate "early actors" for a period of time following the adoption of new protocols, but to otherwise restrict eligibility to new projects. The Reserve's general policy is as follows:

1. For qualifying projects that have not previously been listed or registered on a greenhouse gas registry or program:

    a. For a period of 12 months following the adoption by the Reserve Board of any new protocol, the Reserve will accept projects for listing with start dates (as defined in the protocol) that are no more than 24 months earlier than the date of the Reserve protocol's adoption. These are considered pre-existing projects.

    b. After the 12-month period following the date of the Reserve protocol's adoption, the Reserve will accept projects for listing with start dates (as defined in the protocol) that are no more than 6 months prior to the date on which they are submitted. A project submitted within 6 months of its start date is considered a "new" project.

2. For qualifying projects that have previously been listed or registered on a greenhouse gas registry or program:

    a. Projects with start dates (as defined in a relevant Reserve protocol) on or after January 1, 2001 but more than 24 months earlier than the date of adoption of a relevant new Reserve protocol – and which were listed or registered with another registry or program at least 24 months earlier than the date of adoption of the new Reserve protocol – may apply for transfer to the Reserve. These are considered pre-existing projects.

    b. Projects with start dates (as defined in a relevant Reserve protocol) that are no more than 24 months before and no more than 12 months after the date of adoption of a relevant new Reserve protocol – and that were listed or registered with another registry or program no more than 12 months after the date of adoption of the new Reserve protocol – may apply for transfer to the Reserve.

    c. Projects with start dates (as defined in a relevant Reserve protocol) that are more than 12 months after the date of adoption of a relevant new Reserve protocol, and that were listed or registered with another registry or program within 6 months of the project start date, may apply for transfer to the Reserve.

The Reserve considers a protocol to be "new" if it:

- Covers an entirely new project type not covered by any of the Reserve's existing protocols;
- Creates a wholly new category of eligible projects under an existing protocol (in which case only the new project category would qualify for a 12-month period of "early actor" eligibility); or
- Significantly expands the geographic coverage of the protocol (in which case only projects in newly covered geographic areas would qualify for a 12-month period of "early actor" eligibility).

If a new version of a protocol is adopted (e.g. updating from Version 1.0 to Version 2.0), this does not necessarily mean it will be considered a "new" protocol.

2.4.4 Project Crediting Period

The project "crediting period" defines the period of time over which a project's GHG reductions are eligible to be verified as CRTs. In general, the start of a project's crediting period will correspond to its start date.

The length of a project's crediting period is defined in each project protocol. For most non-sequestration projects registered with the Reserve, there is a 10-year crediting period that may be renewed one time for a maximum of two 10-year crediting periods. For sequestration projects, the crediting period may be up to 100 years. Refer to each project protocol for specific details on allowable crediting periods.

If a project wishes to apply for eligibility under a second crediting period, it must do so by re-submitting project submittal forms within the final six months of the project's initial crediting period and paying the project submittal fee. The project must meet all of the eligibility requirements of the most current version of the applicable protocol at the time of re-submittal to be eligible for a second crediting period.

Note that projects registered under early protocol versions that do not have provisions for a second crediting period can apply for one under the most current version of the protocol, if the most current version allows for a second crediting period.

Notwithstanding any pre-defined crediting period, projects that become required by law will not be eligible to receive CRTs for the reductions they generate, unless otherwise specified in the protocol. Thus, in most cases, if a project becomes subject to a regulation, ordinance or permitting condition that effectively requires its implementation, the project can no longer be considered additional and its crediting period will be terminated. The crediting period will likewise be terminated if the emission sources affected by a project are included under an emissions cap (e.g. under a state or federal cap-and-trade program) or GHG emissions from the project/project site are directly regulated by a local, state or federal agency. As specified in each protocol, emission reductions may be reported to the Reserve until the date that a regulation or emissions cap takes effect.

Details on the allowable crediting period for each type of project recognized by the Reserve are contained in each protocol.

Once a project has reached the end of its crediting period(s) and is no longer being issued CRTs, the project is considered "completed." Although the project is completed, project information remains publicly available through the Reserve software indefinitely.

2.4.5 Bundling/Aggregation of Projects

Only certain types of Reserve-recognized GHG projects may be aggregated for registration and reporting purposes. Generally, each GHG project, as defined by the project definition and/or project boundary (described in each protocol), must register separately with the Reserve. However, protocols for certain project types may allow project boundaries to span multiple activities or locations. For example, the Livestock Project Protocol covers centralized manure digesters by allowing the project boundary to include all individual livestock operations that contribute manure to the centralized processing facility, as well as the centralized facility itself. The Reserve has also developed aggregation guidelines for project types in the agriculture sector and for small-scale forest projects, which allow forest inventory and verification requirements to be streamlined for individual projects.

Project developers should check specific project protocols and associated guidance documents for direction on whether and how aggregation is allowed.

2.4.6 Regulatory Compliance and Environmental and Social Safeguards

The Reserve requires project developers to demonstrate that their GHG projects will not undermine progress on other environmental issues such as air and water quality, endangered species and natural resource protection, and environmental justice. When registering a project, the project developer must attest that the project was in material compliance with all applicable laws, including environmental regulations, during the verification period. The project developer is also required to disclose any and all instances of non-compliance – material or otherwise – of the project with any law to the Reserve and the verification body.

If a project or project activities have caused a material violation, then CRTs will not be issued for GHG reductions that occurred during the period(s) when the violation occurred. Individual violations due to "acts of nature" or due to administrative or reporting issues (such as an expired permit without any other associated violations or tardiness in filing documentation) are not considered material and will not affect CRT crediting. If it is determined that a project was out of compliance after CRTs have been issued, CRTs may be cancelled for the time period of non-compliance.

A violation is considered to be "caused" by a project or project activities if it can be reasonably argued that the violation would not have occurred in the absence of the project activities. If there is any question of causality, the project developer shall disclose the violation to the verifier.

In addition, individual protocols may contain requirements designed specifically to ensure environmental and social safeguards. Individual protocols may allow for project developers to report measures taken to avoid negative impacts. Individual protocols may also encourage project developers to report on the potential environmental co-benefits of their projects, such as reductions in other air pollutants, improvements in water quality, enhancement of wildlife habitat, etc.

In developing environmental and social safeguard criteria and requirements for specific protocols, the Reserve applies the following general principles:

Common Agency

Environmental and social harms will only be considered in determining project eligibility[7] to the extent that they can be attributed to the same agents (e.g. project developers, implementers or operators) in charge of implementing the project. Harms that may occur concurrently with a project, but are caused by other actors, will not be a factor in determining eligibility. The agents responsible, individually or collectively, for implementing projects will be determined during the protocol development process in consultation with stakeholders.

Proximity

Only environmental and social harms directly associated with a project activity (i.e. either physically or causally proximate) will be considered:

- Harms directly caused by project activities, regardless of where the harms physically occur, will be a factor in determining eligibility.
- Harms physically proximate to project activities but not directly caused by those activities may also be considered in determining eligibility if they are caused by agents responsible for project implementation. Such harms will be considered only if the agents are *required by the relevant protocol* to be involved in project implementation. Required agents will be specified in the Reserve's protocols, e.g. as part of the project definition or definition of eligible "project developers." If an agent is allowed, but not required, to be involved in project implementation, then physically proximate harms caused by that agent will not be considered (even if such an agent is directly involved with a particular project).
- Harms caused by agents in charge of implementing a project that occur at sites or facilities not linked or co-located with the project will *not* be a factor in determining eligibility.

Both agency and proximity of effects will be considered in the protocol screening and development processes to identify and set clear standards for the application of this policy.

In determining whether environmental and social harms are occurring, the Reserve will use the following criteria:

Legal Obligation

The Reserve will rely first and foremost on legal requirements within the jurisdiction(s) where the project is implemented. Project agents that are found to be out of material compliance with applicable laws, regulations or other legal mandates that apply to the project itself or activities proximate to the project will be penalized.

"Do No Harm" Beyond Legal Requirements

In some cases, the Reserve may determine, in consultation with stakeholders, that existing legal requirements are insufficient to guarantee protection against important environmental and social harms. In these cases, the Reserve may include additional criteria in protocols to ensure that projects will not give rise to these harms, or may screen out certain project types or activities from eligibility under a protocol altogether.

[7] Either initial eligibility or eligibility to receive credits.

The Reserve coordinates with government agencies and environmental representatives to ensure that its climate-oriented projects complement other environmental policies and programs.

2.5 Defining the GHG Assessment Boundary

The GHG Assessment Boundary delineates the GHG sources, sinks, and reservoirs (SSRs)[8] that must be assessed in order to determine the total net change in GHG emissions caused by a GHG reduction project.[9] GHG Assessment Boundaries are defined for each type of project activity addressed in a Reserve protocol.

The GHG Assessment Boundary is not a boundary related to a project's physical location. Instead, it encompasses all SSRs that could be significantly affected by a project activity, regardless of where such SSRs are located or who owns or controls them. A comprehensive and clearly defined GHG Assessment Boundary is required in order to provide a complete accounting of the net GHG reductions achieved by a project. All SSRs within the GHG Assessment Boundary are included in the calculation of GHG reductions.

SSRs are only included in the GHG Assessment Boundary if a project activity will have a *significant* effect on their associated GHG emissions or removals. The Reserve determines significance based on an assessment of the range of possible outcomes for a relevant SSR. There is no numerical threshold for significance. Inclusion or exclusion of SSRs is determined for each protocol based on the principles of completeness, accuracy, and conservativeness, and the need for practicality (e.g. related to measurement and monitoring costs). In general, relevant SSRs will only be excluded from the GHG Assessment Boundary if:

1. Projects are likely to reduce GHG emissions (or increase removals) at a SSR, so that excluding the SSR would be conservative (i.e. doing so would result in an underestimation of total net GHG reductions for the project); or
2. The total increase in GHG emissions from *all* excluded SSRs is likely to be less than five percent of the total GHG reductions achieved by a project.[10]

For each included SSR, the protocols:

- Identify whether the SSR is present in the baseline, project case or both
- Identify whether and how GHG emissions, removals or storage from the SSR will be measured, calculated or estimated
- If GHG emissions, removals or storage will be estimated, justify why values will be estimated rather than measured (or calculated from other measurements

[8] Terminology is from International Organization for Standardization, 2005. *ISO 14064, Part 2*: *"Specification with guidance at the project level for quantification, monitoring, and reporting of greenhouse gas emission reductions or removal enhancements."* International Organization for Standardization, Geneva, Switzerland.
[9] See World Resources Institute and World Business Council for Sustainable Development, 2005. *The GHG Protocol for Project Accounting*, World Resources Institute, Washington, DC.
[10] If excluding SSRs is unavoidable for practical reasons, then calculation and estimation methods related to included SSRs must be made suitably conservative in order to avoid overestimating total net GHG reductions.

Each protocol contains a table that:

- Lists all SSRs potentially affected by a project
- Explains or describes the SSR
- Indicates whether each SSR is included in the GHG Assessment Boundary
- Justifies instances where an SSR is excluded from the GHG Assessment Boundary
- Briefly describes how GHG emission values for the SSR will be determined, and justifies instances where such values will be estimated

Most protocols also contain a schematic diagram showing how different SSRs are related to each other and indicating which SSRs are included in or excluded from the GHG Assessment Boundary.

The Reserve does not restrict the GHGs that may be considered within the GHG Assessment Boundary. Any gas that has been determined by the IPCC to have a radiative forcing effect on the atmosphere may be considered for inclusion in a protocol. Reserve protocols may address gases other than the six GHGs regulated under the Kyoto Protocol (i.e. CO_2, CH_4, N_2O, SF_6, HFCs, and PFCs).

2.5.1 Physical Project Boundaries

For some types of projects, it is necessary to define a physical boundary for a project in addition to a GHG Assessment Boundary. Physical boundaries are defined in terms of the physical area affected by a project activity and possibly specific equipment or facilities involved. Protocols will only require identification of a physical boundary where a physical boundary is necessary to quantify the magnitude of GHG emissions, removals or storage associated with one or more SSRs included in the GHG Assessment Boundary. The primary example would be forest projects, where the amount of carbon stored by a project depends on the area of land on which the project activity takes place.

2.5.2 Leakage Accounting

The term "leakage" is often used to refer to unintended increases in GHG emissions that may result from a GHG reduction project. Generally, leakage occurs at SSRs that are physically distant from the project itself or otherwise outside the project's physical boundaries. Because the Reserve requires the definition of a comprehensive GHG Assessment Boundary – which must include any and all SSRs associated with significant GHG emissions, regardless of their physical location – Reserve protocols generally do not require an explicit and separate accounting for "leakage" effects. Instead, all effects of a GHG reduction project – both positive and negative – are accounted for without distinguishing one kind of effect from another. This does not mean that Reserve protocols neglect or ignore what other methodologies or protocols identify as "leakage."

Where helpful for conceptual understanding, Reserve protocols may organize SSRs according to whether they are associated with a project's "primary" or "secondary" effects. A project's primary effect is its intended effect on GHG emissions (i.e. intended GHG reductions). Secondary effects are unintended effects on GHG emissions, often associated with leakage.[11]

[11] The terms "primary effect" and "secondary effect" are from the World Resources Institute and World Business Council for Sustainable Development, 2005. *The GHG Protocol for Project Accounting*, World Resources Institute, Washington, DC.

2.6 Quantifying GHG Reductions

GHG emission reductions are quantified by comparing actual project GHG emissions to baseline GHG emissions. Baseline emissions are an estimate of the GHG emissions from sources within the GHG Assessment Boundary that would have occurred in the absence of the project (assuming the project is additional and would not have happened anyway). Project emissions are actual GHG emissions that occur at sources within the GHG Assessment Boundary. Project emissions must be subtracted from the baseline emissions to quantify the project's total net GHG emission reductions. For sequestration projects, the formula is reversed: the baseline carbon sequestration rate is subtracted from the project carbon sequestration rate.

For most protocols, GHG emission reductions must be quantified and verified on at least an annual basis. Project developers may choose to quantify and verify GHG emission reductions on a more frequent basis if they desire and if the protocol allows it. The length of time over which GHG emission reductions are quantified is called a "reporting period." The length of time over which GHG emission reductions are verified is called a "verification period." Under some protocols, a verification period may cover multiple reporting periods (see Section 3.4.2).

2.6.1 Estimating Baseline Emissions

Baseline emissions are always subject to uncertainty because they are counterfactual, i.e. they are an estimate of GHG emissions or removals that would have occurred in the absence of the project. Depending on the project type and SSRs involved, many methods can be used to try to estimate baseline emissions. The Reserve uses standardized baselines in its protocols to the extent possible, meaning that the same conservative assumptions, emission factors, and calculation methods are applied to all projects. Standardized baseline approaches seek to avoid case-by-case analysis of individual projects while maintaining overall levels of quantification accuracy and environmental integrity. Within Reserve protocols, however, project-specific calculations and emission factors may be used wherever necessary to ensure accuracy, or where standardized methods would result in estimates that are overly conservative in a large number of cases.

Standardized baselines are developed by considering broad trends (economic, technological, regulatory, and policy) in the industry or sector relevant to a project type and determining what future "business as usual" alternative activities are likely to be. To develop standardized baselines, the Reserve works with stakeholders to determine the most likely alternative technologies or practices. In many cases, a single practice, activity or technology is assumed to be the common baseline alternative for a class of project activities. In some cases, the performance threshold developed for additionality may also be used as an emissions baseline. After establishing a standard baseline alternative, the Reserve develops specific quantification steps, calculation methods, and formulas to estimate baseline emissions, incorporating site-specific data where appropriate. Depending on the project type, baseline emission estimates may either be fixed at the outset of a project, or they may be regularly updated using actual data collected during the project's operation (used to infer baseline conditions).

2.6.2 Quantifying Project Emissions

Project GHG emissions are quantified based as much as possible on actual measurements of project activity performance. GHG emissions for each SSR may be measured directly, or calculated from measurements of parameters from which GHG emissions can be derived. For SSRs where direct or indirect measurements are too costly or infeasible, project GHG emissions may be estimated using standard assumptions or models.

2.6.3 Quantification Methods

The Reserve develops methods to calculate baseline and project emissions that meet an acceptable level of accuracy. As a general rule, methods should ensure 95% confidence that actual emissions are within +/- 5% of measured or calculated values, although required levels of accuracy will often depend on the specific magnitudes involved and their materiality. Methods may employ one or more of the following approaches:

- **Emission factor** approaches use input data multiplied by specific emission factors that approximate emissions per unit of the input. The factors are derived from research or model simulations and they are typically categorized by variables such as geographic location, local climate data, tree species, equipment standards, etc.
- **Dynamic models** estimate processes that cause GHG emissions (or biological carbon sequestration). Model users input specific parameters and the model generates emission or removal estimates. Research studies identify the parameters as important drivers of emissions or removals. Sometimes the parameter may be chosen from data provided by the Reserve or they may need to be measured at the project location.
- **Direct emission measurement** uses special instruments that monitor the flow of GHGs from the source into the atmosphere. This involves instrumentation and monitoring of GHG emission sources on-site.

2.6.3.1 Quantification Uncertainty and Conservativeness

Where cost-effective methods for quantifying GHG emissions or carbon storage yield uncertain estimates (e.g. greater than a five percent range), it may not be possible to accurately quantify baseline or project emissions. In these cases, Reserve protocols must use conservative assumptions and/or parameter values that will tend to underestimate, rather than overestimate, total GHG reductions and removals.

2.6.4 Calculating GHG Reductions or Removals

GHG reductions are calculated by periodically comparing the baseline to the project over a certain time period, usually one year.

The general formula for calculating GHG reductions is:

GHG Reductions = Baseline Emissions – Project Emissions

Positive GHG reductions are achieved when the project results in lower GHG emissions to the atmosphere over a certain time period compared to what would have happened absent the project activity.

For biological carbon sequestration projects, the general formula for calculating GHG removals is:

GHG Removals = (Incremental Project Sequestration – Incremental Baseline Sequestration) + (Baseline Emissions – Project Emissions)

Positive GHG removals are achieved when the project results in more carbon sequestered in biological carbon stocks over a certain time period than would have been in the absence of the project activity.

2.6.5 Immediate Crediting for Future Avoided Emissions

In accordance with recognized principles for carbon offset quality, the Reserve has upheld a general policy against "forward crediting" of GHG emission reductions. Forward crediting occurs when credits are issued for GHG reductions before such reductions have occurred and before the activities that caused such reductions have been verified.[12] Subject to certain conditions, however, the Reserve does credit reductions upfront when a verified action results in the immediate avoidance of a future stream of GHG emissions. Please see the Reserve's policy memo on this subject, available at http://www.climateactionreserve.org/how/program/program-manual/.

2.7 Project Monitoring

Monitoring of GHG projects is required in order to determine project performance, quantify actual GHG emissions, and in some cases, calibrate baseline emissions estimates. Under all Reserve protocols, GHG reductions are quantified only based on actual project monitoring data. Monitoring requirements are specified in each protocol and include provisions for:

- Monitoring GHG emissions or removals associated with SSRs within the GHG Assessment Boundary
- Monitoring other data related to assumptions underlying GHG emissions and/or carbon stock estimates
- Documenting data storage and quality assurance/quality control (QA/QC) measures
- Ensuring all project components are operated in a manner consistent with the manufacturer's recommendations
- Ensuring all monitoring instruments are calibrated and maintained as specified by the manufacturer

The Reserve requires a monitoring plan to be established for all monitoring and reporting activities associated with a project. The monitoring plan serves as the basis for verification bodies to confirm that the monitoring and reporting requirements in each protocol have been met and that consistent, rigorous monitoring and record-keeping is ongoing at the project site. Monitoring plans must cover all aspects of monitoring and reporting contained in a protocol and must specify how data for all relevant parameters will be collected and recorded. Each protocol specifies in a table the parameters that must be monitored and how data for each parameter must be acquired (e.g. from measurement, calculation, approved references or operating records).

At a minimum, a monitoring plan must stipulate the frequency of data acquisition; a record keeping plan; the frequency of instrument field check and calibration activities; and the role of individuals performing each specific monitoring activity. Monitoring plans should include QA/QC provisions to ensure that data acquisition and meter calibration are carried out consistently and with precision.

Finally, monitoring plans for most protocols must include procedures that project developers will follow to ascertain and demonstrate that the project passes the legal requirement test for additionality.

[12] Offset Quality Initiative, 2008. *Ensuring Offset Quality: Integrating High Quality Greenhouse Gas Offsets Into North American Cap-and-Trade Policy,* p. 10. Available at: http://www.offsetqualityinitiative.org/.

2.8 Ensuring Permanence of GHG Reductions

Because CO_2 and other GHG emissions remain in the atmosphere for very long periods of time, offsetting reductions in GHG emissions must effectively be permanent. Some types of offset projects, however, cause GHG reductions by removing CO_2 from the atmosphere and storing it in a reservoir (e.g. in trees or other organic materials, or in geologic formations). In these cases, there is a risk that CO_2 may be re-emitted to the atmosphere, leading to a "reversal" of GHG reductions. A reversal occurs when the total amount of CO_2 stored by a project becomes less than the total number of CRTs issued to the project. This can happen, for example, if some or all of the trees associated with a forest project are destroyed by fire, disease or intentional harvesting.

The Reserve requires that reversals be compensated for in order to ensure the integrity of CRTs and to maintain their effectiveness at offsetting GHG emissions. Specific rules and conditions for reversal compensation are detailed in individual protocols. Generally, the Reserve requires that CRTs be retired in proportion to any reversals, such that the total number of issued CRTs does not exceed the total quantity of CO_2 stored by a project over a sufficiently long period of time.

3 Program Rules and Procedures

3.1 Program Manual

This manual contains details on the Reserve's program, policies, and requirements. Users of the Reserve program, including verification bodies, are subject to the requirements and guidance specified in the most recent version of the Program Manual. The Program Manual is considered effective as of the date it is posted on the Reserve website. All account holders and verification bodies are notified when an update to the Program Manual is released, and the manual is available on the Reserve's Program Manuals and Policies webpage at http://www.climateactionreserve.org/how/program/program-manual/.

3.1.1 Revisions to the Program Manual

Between updates, the Reserve may release policy memos that update or replace guidance in the Program Manual or protocols. These memos are considered effective on the date they are posted on the Reserve website; users of the Reserve program and verification bodies must follow the guidance specified in the memo from that date forward. All account holders and verification bodies are notified when a policy memo is released, and memos are posted on the Reserve's Program Manuals and Policies webpage at http://www.climateactionreserve.org/how/program/program-manual/.

In most cases, the contents of the memos are incorporated into the next update of the Program Manual.

3.2 Start Date

In general, the start date for a project corresponds to the start of activity that generates GHG reductions or removals. Specific requirements for determining the start date of a project are contained in each protocol. Project start date is used in determining project eligibility and initiates a project's crediting period.

Although the project start date is defined by each protocol, the date that begins the project's initial verification period is not. A project must begin its initial verification period on the project start date. This ensures that all project emissions within the GHG Assessment Boundary are accounted for from the project start date until the end of its crediting period.

It is possible that a project developer may not have implemented the appropriate monitoring or QA/QC procedures per the protocol on the project start date. Regardless, the project developer must still begin the initial verification period on the project start date. The project developer shall claim no emission reductions for any time period that the project cannot meet the data, monitoring or QA/QC requirements of the protocol. The verification body must confirm with reasonable assurance that project emissions were not greater than baseline emissions during a verification period, including the time period from the project start date until the protocol requirements were met. Verification bodies shall perform a review of project documentation and calculations for such a time period and may use professional judgment when assessing available project documentation.

If the verifier cannot confirm with reasonable assurance that project emissions were less than or equal to baseline emissions for the verification period, the Reserve will make a determination of action on a case-by-case basis.

3.3 Project Registration

This section summarizes the administrative steps a project developer must follow to register a project with the Climate Action Reserve. The timing of project registration may be independent of its start date. In other words, projects may be submitted after they begin operation (subject to the eligibility restrictions on the project start date described above) or before they begin operation. However, the steps outlined in this section must be followed in order for the Reserve to issue CRTs to a project.

Detailed information on the Reserve's software operating procedures, including step-by-step instructions for creating accounts, entering information, receiving CRTs, and transferring CRTs among accounts can be found in the Reserve's User Guide: http://www.climateactionreserve.org/how/program/documents/.

3.3.1 Fee Structure Summary

The Reserve imposes required fees that are charged to account holders during the project registration process (Sections 3.3.2 to 3.3.13). A summary of those fees is below:

Reserve Account Fees (Effective December 1, 2014)	
Account Setup Fee	$500
Account Maintenance Fee (annual per project)	$500
Account Re-activation Fee	$500
Project Submittal Fee (per project)	$500
Project Transfer Fee (per project transferred between account holders, paid by the transferee)	$500
Project Registration Extension (per request)	$200
CRT Issuance Fee (per CRT issued)	$0.22
CRT Transfer Fee (per CRT transferred between account holders, paid by the transferer)	$0.03
Retirement (per CRT retired)	no charge

3.3.2 Account Registration

As a first step, an account must be set up with the Reserve. Account registration only needs to occur once; any number of projects can be registered under the same account.

Any person or organization may apply for a Reserve account regardless of location or affiliation. Account applications are completed through the Reserve software. Along with completing an online application, each user must also agree to the legal Terms of Use for the Reserve. The Terms of Use binds users of both the Reserve software and the program itself to the terms laid out in the protocols, the Program and Verification Manuals, and the Operating Procedures as modified from time to time. The Terms of Use document can be downloaded at http://www.climateactionreserve.org/how/program/documents/.

When a new account is approved by the Reserve, the account holder will receive an invoice for the account maintenance fee ($500 annually). Payment is due within 30 days of approval to avoid cancellation of the new account.

Account management can be shared between the account owner and another party provided a Designation of Authority form has been completed (see Section 3.3.2.2).

3.3.2.1 Types of Accounts

There are seven types of accounts in the Reserve:

1. **Project Developer**. An account type for organizations that wish to register projects that generate GHG reductions or removals. This account type can also be used to transfer and manage CRTs.
2. **Trader/Broker/Retailer**. This type of account allows the transfer and management of CRTs, but not registration of projects.
3. **Verifier**. An account type for verification bodies that have been trained and authorized by the Reserve to verify projects. There is no annual account fee for verification bodies.
4. **Reviewer**. This account type is only for those who have been asked by the Reserve to serve as a project reviewer. There is no annual account fee for reviewers.
5. **Client**. This type of account is for any individual or entity that wishes to retire CRTs but not develop its own projects.
6. **Aggregator**. This account type is designated for use by project aggregators. This account type enables the management of CRTs on behalf of multiple projects formally registered as part of an aggregation, as allowed under certain project protocols. The account type can be held by any entity authorized to manage accounting, reporting, and/or CRT transfers on behalf of an aggregation of projects.
7. **Aggregation Participant**. This account type is designated for use by project developers participating in an aggregate according to protocol-specific rules and procedures. This account type allows the registration of projects that are formally part of an aggregation. This account type may also be used to transfer and manage CRTs under the terms and restrictions imposed by the relevant project protocol and/or aggregation guidance.

The public also has the ability to view information on the Reserve, but an account is not needed to view publicly available information.

3.3.2.2 Designation of Authority

A project developer and trader/broker/retailer account holder may designate an agent to access the Reserve software on their behalf.

Account holders must complete the Designation of Authority form to specify agents besides themselves who will have access to all information contained in their account. An example of an account holder agent would be a technical consultant hired by the project developer to manage a project on their behalf.

An account holder agent will have all the rights and responsibilities of the account holder and will also be bound by the Reserve Terms of Use. The Designation of Authority form can be downloaded at http://www.climateactionreserve.org/how/program/documents/.

3.3.3 Project Submittal

Project developers must complete and upload the appropriate project submittal forms for the project type and pay a project submittal fee to the Reserve ($500 per project). Submittal forms are specific to the project type and include project descriptions and preliminary information used

to assess eligibility. The submittal forms for each type of project are available for download at http://www.climateactionreserve.org/how/program/documents/. A project is considered "submitted" when all of the appropriate forms have been completed, uploaded and submitted through the Reserve software.

3.3.4 Requests for Variances from Protocol Requirements

The Reserve will allow variances from protocol requirements only where Reserve staff determines that such variances are acceptable. Variances are only granted for deviations from requirements related to monitoring or measuring of GHG reductions or removals. The Reserve will not consider variances related to project eligibility criteria, or to the general methodological approaches for quantifying GHG reductions or removals specified in a protocol.

Reserve protocols are standardized documents developed through a transparent, stakeholder-driven process during which public input is solicited and considered thoroughly. Through this process, a single set of requirements and methodologies is established for all projects. If a requested variance diverges significantly from the approved methodology in a protocol, in that it requires extensive analysis of site-specific features and/or employs concepts not fully vetted through public consultation, the variance will be denied.

Variance requests that affect eligibility rules or methodological approaches cannot be granted, but if a request appears to have merit and may have application beyond a single project, it may be a candidate for future work and inclusion in future protocol revisions. Therefore, while a variance may not be approved at the time of submittal, the Reserve may elect to initiate work to explore the issue further if the resolution may be extrapolated, standardized, and used to inform future protocol revisions. If a future version of a protocol addresses the request for variance in such a way that the project would meet the requirements of the revised protocol, the project may be re-submitted and will not be deemed ineligible because of start date requirements (i.e. that the project must be submitted within six months of the project start date – see Section 2.4.3).

To submit a variance request, the project developer must complete and submit a Request for Project Variance form and pay a $1,350 fee. No variance request will be considered until the project in question has been formally submitted to the Reserve. Each variance request is only applicable to a single project. A project developer seeking a similar variance on multiple projects must still submit a variance request for each project.

Upon receipt of the appropriate documentation and payment of the invoice, the Reserve will review the variance and will provide explicit, written acceptance to the project developer if the variance is approved. Decisions on variances are considered *sui generis*, and are not precedent-setting. The Reserve retains the right to reject a variance, request further documentation or impose additional constraints and/or discount factors on the proposed monitoring or measuring methods. There is no process to appeal the denial of a variance; the decision to approve or deny a variance request lies solely with the Reserve. If the Reserve approves a variance request, a letter describing the variance granted will be sent to the project developer, and will be made publicly available.

The Reserve also maintains a publicly-accessible Variance Tracking Log, which provides a summary list of all variance requests approved by the Reserve. The variance log can be downloaded at http://www.climateactionreserve.org/how/program/documents/.

The Request for Project Variance form can be downloaded at http://www.climateactionreserve.org/how/program/documents/.

3.3.5 Project Listing

Once the project submittal fee has been received, the Reserve reviews the forms to determine whether they are complete and conducts a preliminary assessment of the project's eligibility according to the eligibility criteria set forth within the appropriate project protocol. Once this review is satisfactorily completed, the project is "listed" and made publicly available on the Reserve. Project verification activities cannot begin until a project is listed. Review of submitted forms will generally take no more than 10 business days.

Note that a project may be verified against the protocol version in place at the time of project submittal as long as the project is verified by its verification deadline (see Section 3.4.2). As long as a project meets it verification deadline, a project developer is not required to verify against a new protocol version, even if one becomes effective in between the time a project is submitted and registered. Project developers always have the option, however, of voluntarily choosing to verify against the most recent version of a protocol at any time.

Listing a project does not constitute a validation or verification of the project or its eligibility; it is a preliminary review of project information provided to the Reserve by the project developer. It is not a final determination of the eligibility of the project, nor does it guarantee CRT issuance or CRT ownership. Project registration and CRT issuance is contingent upon the submission and approval of all required forms and documents for a particular project type, including, but not limited to:

- Attestation of Title (see Section 3.3.6)
- Attestation of Voluntary Implementation (see Section 3.3.7)
- Attestation of Regulatory Compliance (see Section 3.3.8)
- NOVA/COI form (see Section 3.3.9)
- Verification Report, Verification Statement, and List of Findings

The required forms and documents for registration under each project type can be found at http://www.climateactionreserve.org/how/program/documents/.

3.3.6 Attestation of Title

All project developers must submit a signed Attestation of Title form indicating that they have exclusive ownership rights to the GHG reductions or removals associated with the project and for which the Reserve will issue CRTs. In addition, the project developer agrees that ownership of the GHG reductions or removals will not be sold or transferred except through the transfer of CRTs in accordance with the Reserve Terms of Use policies.

This form shall be signed and submitted after the conclusion of each verification period for a project, as specified in each protocol. Note that the entity/individual signing the Attestation of Title (and the other attestation forms) must be the account holder who submitted the project. Projects will not be registered unless the account holder and signatory to the attestation forms match.

The Attestation of Title form can be downloaded at http://www.climateactionreserve.org/how/program/documents/.

3.3.7 Attestation of Voluntary Implementation

All project developers must submit a signed Attestation of Voluntary Implementation form that confirms the project was implemented and established voluntarily and continues to operate as such. The project developer attests that at no time was the project required to be enacted by any law, statute, rule, regulation or other legally binding mandate by any federal, state, local or foreign governmental or regulatory agency having jurisdiction over the project.

This form is signed and submitted after the conclusion of each verification period (unless otherwise exempted by the protocol under which the project is registered). The Attestation of Voluntary Implementation, along with activities detailed in the project's monitoring plan, are the primary mechanisms by which the project passes the legal requirement test, as specified in each protocol.

The Attestation of Voluntary Implementation form can be downloaded at http://www.climateactionreserve.org/how/program/documents/.

3.3.8 Attestation of Regulatory Compliance

All project developers must sign and submit an Attestation of Regulatory Compliance form after the conclusion of each verification period, as specified in each protocol. By signing this form, the project developer attests to the project's compliance status throughout the project verification period. The form identifies specific dates during the verification period over which the project was in material compliance with all laws. In addition, the form confirms that the project developer has disclosed to its verification body in writing any and all instances of non-compliance of the project with any law. The Attestation of Regulatory Compliance form and the accompanying disclosure to the verification body of non-compliance events are the primary mechanisms by which the project passes the regulatory compliance eligibility criterion, as specified in each protocol.

The Attestation of Regulatory Compliance form can be downloaded at http://www.climateactionreserve.org/how/program/documents/.

3.3.9 Conflict of Interest Evaluation and Initiation of Project Verification

As described in Section 3.4, the Reserve requires third-party verification of all GHG reductions by an ISO-accredited and Reserve-approved verification body. Once the project developer has selected a verification body, the verification body must submit a Notice of Verification Activities and Conflict of Interest (NOVA/COI) evaluation form to the Reserve at least 10 business days prior to the commencement of verification activities. This form includes the scope of proposed verification activities and other required information used to assess the potential for conflict of interest between the verification body and the project developer. In order for verification activities to begin, the Reserve must determine that the potential for conflict of interest between the project developer and the verification body is low or can be mitigated. The conflict of interest evaluation must be completed before verification activities can begin. The NOVA/COI form is available for download at http://www.climateactionreserve.org/how/program/documents/.

Once the conflict of interest evaluation is complete, the project developer must upload the required attestations and enter project data into the Reserve software, and then submit the project for verification. Required data is described in each protocol, and can include project information, monitored GHG emissions data, estimated GHG emission reductions, and other data required by the project monitoring guidelines. Once the project has been submitted by the

project developer, the Reserve software automatically notifies the verification body that the project is ready for verification.

The verification body then reviews the project data in the Reserve software, performs verification activities, conducts site visits as needed, and verifies that the listed project has fully complied with the appropriate project protocol and that the GHG reductions or removals have been appropriately quantified. The verification body then submits a Verification Report, Verification Statement, and List of Findings through the Reserve software.

3.3.10 Approval of Verification and Project Registration

Once the verification body completes the Verification Statement, Verification Report, and List of Findings, the project developer reviews the verification body's documents and then formally submits the project to the Reserve for final approval of the verification. The Reserve reviews the submission for completeness, reviews the Verification Statement, Verification Report, and List of Findings, and either approves the verification or requests a re-submittal of one or more components. Upon approval, the project developer receives an invoice for the issuance of CRTs generated by the project ($0.20 per CRT).

A project becomes "registered" the first time it is verified and accepted by the Reserve. The status of the project then changes from listed to registered in the Reserve software. See Section 3.4 below and the Reserve Verification Program Manual for further information about the project verification cycle.

3.3.11 Project Completion

A project is considered "completed" when it is no longer reporting to the Reserve. A project may be considered completed because it reaches the end of its crediting period(s), becomes ineligible or the project developer voluntarily chooses not to continue reporting. The reason for the completed status is noted in the Reserve system. Once a project is completed, project information remains publically available indefinitely.

3.3.12 Record Keeping

According to the Terms of Use, the Reserve has the right to examine, audit, and obtain copies of users' records from the most recent 12 month period. The Reserve does not anticipate this being a routine need, but rather a rare event to verify the accuracy of any attestation, transfer or statement, or to review account holders' performance of obligations under the protocols, the Terms of Use or the Reserve's Operating Procedures.

Project developer account holders on the Reserve must also maintain copies of all relevant records related to their projects and associated account usage for the time period specified in each protocol.

3.3.13 Publicly Available Information

The Reserve is intended to serve both account holders and the interested public. To this end, information about each project registered with the Reserve is accessible to the public. This openness and transparency provides interested parties with valuable information and helps instill confidence in the Reserve and enhance the credibility of the offset credits it certifies.

The public and all account holders can access the following information online:

- **Participating companies.** Organizations that have an active Reserve account (address or contact information is not disclosed).
- **Projects.** Projects that are listed or registered with the Reserve. Rejected project submittals and projects that are de-listed prior to registration and/or CRT issuance are not displayed; however, information will be made publicly available indefinitely for any project to which CRTs have been issued, regardless of whether the project is completed, terminated or transferred to another program.
- **Project CRTs issued.** Projects for which CRTs have been issued along with the quantity of CRTs issued to each project. Current CRT balances in individual accounts are not automatically displayed.
- **Search of CRT serial numbers.** The Reserve software allows searching for a CRT serial number by batch number or block start or end numbers. This search feature is designed for someone who wants to see details about a given CRT batch (for example, a CRT buyer). It cannot be used to search every CRT issued for a company or project. Search results include whether the CRTs are active or retired and, if retired, the time and date of retirement.
- **Accounts disclosed to public.** Active or retired CRT balances that account holders have chosen to be shown to the general public.
- **Retired CRTs.** Displays the CRTs that have been retired by account holders.

Information that is never shared with the public includes:

- Company street addresses
- Company phone, fax or email addresses
- Internal company information, like billing addresses
- Any person's contact information

Account holders' contact information is not used by the Reserve except to notify users of important system occurrences and policy updates and is not shared with other parties.

3.4 Project Verification

The Reserve requires periodic third-party verification of all GHG projects, as specified in each project protocol. This provides an independent review of data and information used to register CRTs. For every project, a third-party verification body reviews documentation, monitoring data, and procedures used to estimate GHG reductions or removals. The verification body submits a Verification Statement and Verification Report that provide the basis for determining the quantity of CRTs that can be issued to the project. The Reserve makes these documents publicly available. Verifiers conducting verification activities for projects listed or registered on the Reserve must be trained by the Reserve or its approved designees and employed by or subcontracted to an accredited verification body. A list of accredited verification bodies is available at http://www.climateactionreserve.org/how/verification/connect-with-a-verification-body/.

Verification bodies follow guidelines set forth in the Reserve's Program Manual and Verification Program Manual, as well as rules and procedures described in the specific verification guidance that is included in each project protocol.

3.4.1 Validation

Validation involves determining the project methodology and a project's eligibility to generate GHG reductions or removals. Unlike some other offset programs, the Reserve does not require that validation be conducted. Eligibility criteria and methodologies for emission reduction calculations are built into the Reserve protocols. Because the Reserve's eligibility criteria are mostly standardized, determination of eligibility is usually straightforward and requires minimal interpretative judgment by verification bodies. The first time a project is verified, verification bodies are required to affirm the project's eligibility according to the rules defined in the relevant project protocol. Project developers may choose to have a project verified without verifying CRTs for issuance in order to establish its eligibility for registration and provide more certainty to potential CRT buyers or sellers. However, when a project developer is seeking to register CRTs, a full verification must be conducted. See the Verification Program Manual for more information.

3.4.2 Reporting Period and Verification Period

GHG emission reductions are generally quantified and verified on an annual basis. Some protocols allow project developers to verify GHG emission reductions on a more frequent or less frequent basis if they desire. The length of time over which GHG emission reductions are quantified and reported to the Reserve is called a "reporting period." The length of time over which GHG reductions are verified is called a "verification period." Under some protocols, the reporting period and the verification period are identical and no distinction is made between these terms (the protocol may refer only to a "reporting period"). Other protocols distinguish between the two and the maximum period for each is specified. Note that some protocols may allow the verification period to cover multiple reporting periods. However, the end date of a verification period must always correspond to the end date of a reporting period.

CRTs are issued according to the quantity of verified reductions achieved during a verification period, regardless of the period's length.

Reporting periods must be contiguous; there can be no time gaps in reporting during the crediting period of a project once the initial reporting period has commenced.[13] Gaps in monitoring data or activity must be included in reporting periods and verified accordingly. The verification body must confirm that no reductions are claimed for any period for which a gap in monitoring data exists or for which a project was non-operational.

3.4.3 Initial Verification and Registration

A project must complete verification within 12 months of the end of its initial reporting period. To satisfy this verification deadline, the project developer must submit a completed Verification Report and signed Verification Statement to the Reserve.

For project types that require annual verification at a minimum, the Verification Statement and Report may cover a maximum of 12 months of project activity, with the following exceptions. A pre-existing project (see Section 2.4.3) undergoing its initial verification and registration with the Reserve may submit a Verification Statement and Report that cover multiple years, back to the project's start date. This data is considered "historic data." Historic data may only be registered during a pre-existing project's initial verification with the Reserve. The Reserve also allows project developers to register more than 12 months of data during a project's initial verification

[13] There is an exception to this requirement for projects under the U.S. and Article 5 Ozone Depleting Substances Project Protocols. Under those protocols, reporting periods need not be contiguous.

period while still meeting the 12-month verification deadline (based on the maximum initial reporting period specified by each protocol), or register a project's initial verification period as a zero-credit reporting period (see Section 3.4.6).[14]

A project is considered "registered" when the project has been successfully verified by an approved third-party verification body, submitted by the project developer to the Reserve for final approval, and accepted by the Reserve.

A project that fails to meet its initial verification deadline must re-submit under the latest version of the applicable protocol. Projects that do so are not subject to the start date requirements in Section 2.4.3, provided that the project met all applicable requirements at the time of initial submittal.

If a project misses its initial verification deadline, the project is "de-listed"[15] in the Reserve software and is no longer viewable by the public. The Reserve will contact the project developer to inform them they must re-submit under the latest version of the protocol within 60 calendar days of notification.

If the project developer re-submits the project within 60 calendar days, the project is "re-listed"[16] under the same project ID and the project maintains its original start date. The project is given a new listing date.

If the project developer fails to re-submit within 60 calendar days, the project is cancelled. The project developer could still re-submit the same project at a later date, but it would be assigned a new project ID and would have to meet all the requirements of the applicable protocol, including start date requirements.

Projects that successfully re-list must submit either 1) a Verification Statement and Verification Report or 2) a Zero-Credit Reporting Period Acknowledgment and Election form within 12 months of re-submittal, with the following exceptions. Forest and urban forest projects are not eligible for zero-credit reporting periods and therefore must complete initial verification within 12 months of re-submittal.

If a re-listed project misses the deadline above, the project is cancelled. Again, the project developer could still re-submit the same project at a later date, but it would be assigned a new project ID and would have to meet all the requirements of the applicable protocol, including start date requirements.

3.4.4 Registration Extension Request

The Reserve does allow project developers to request a one-time project registration extension for a project's initial verification. No extension requests are granted unless the project has commenced verification and has undergone the site visit for the initial verification period and all outstanding invoices for the project and account holder have been paid. The following extensions may be granted:

[14] Forest and urban forest projects are not eligible for zero-credit reporting periods.
[15] "De-list" is not a phase in the Reserve software. De-listed projects will no longer appear to the public in the software.
[16] "Re-list" is not a phase in the Reserve software. Projects will be identified as "listed" in the software with the same project ID.

- Forest and urban forest projects may be granted a 12 month extension.
- U.S. livestock and U.S. ozone depleting substances projects may be granted a six month extension.
- All other project types may be granted a 30 day extension if the account holder can demonstrate to the Reserve's satisfaction that they will miss the deadline due to extraordinary circumstances. The Reserve holds the right to determine what rises to the level of an extraordinary circumstance.

To submit a request, account holders must submit a completed Request for Project Registration Extension form and requested documentation to the Reserve and pay a $200 review fee. The form must be received by the verification deadline.

The Request for Project Registration Extension form can be downloaded at http://www.climateactionreserve.org/how/program/documents/.

3.4.5 Subsequent Verification

After a project is registered, a Verification Statement and Verification Report must be submitted within 12 months of the end of each subsequent verification period. The maximum allowed length of a verification period is specified in each protocol. For example, a Verification Statement and Report for GHG reductions achieved between January 1, 2015 and December 31, 2015 would have to be submitted by December 31, 2016. The only exception to the verification deadline is if the project developer is taking a zero-credit reporting period (see Section 3.4.6 below).

The Reserve makes account holders aware of upcoming verification deadlines for projects in their account. Project developers that miss this verification deadline are notified and given the choice to:

A) cancel the project; or
B) continue the project by initiating verification using the latest version of the relevant protocol.

Once notified that the verification deadline has passed, a project developer has six months to choose one of the options above. If no choice is communicated to the Reserve within six months, the project is cancelled.

If a project developer chooses Option B, they are required to submit a Zero-Credit Reporting Period Acknowledgment and Election form and the appropriate monitoring documents[17] to retroactively cover the time period since the end date of the last successful verification period (see Section 3.4.6). Thus, the project developer acknowledges that CRTs will not be issued for any GHG reductions or removals achieved by the project since its last successful verification. They are also required to verify the project to the latest version of the relevant protocol.
A project utilizing Option B maintains its original project start date, and thus maintains the crediting period defined by that start date. This option is available to a registered project within its remaining crediting period only; it cannot be used across two crediting periods.

[17] Monitoring plan and monitoring report – see Program Manual, Section 3.4.6 for more details.

If a verification period spans two crediting periods and there is a more recent version of the protocol that must be used for the renewed crediting period (see Section 2.4.4), the project develop can either be issued CRTs for two verification periods by completing separate verifications for each crediting period, or can be issued CRTs for one verification period that spans two crediting periods if they choose to verify the entire verification period to the more current protocol version.

3.4.5.1 Subsequent Verification for Forest and Urban Forest Projects

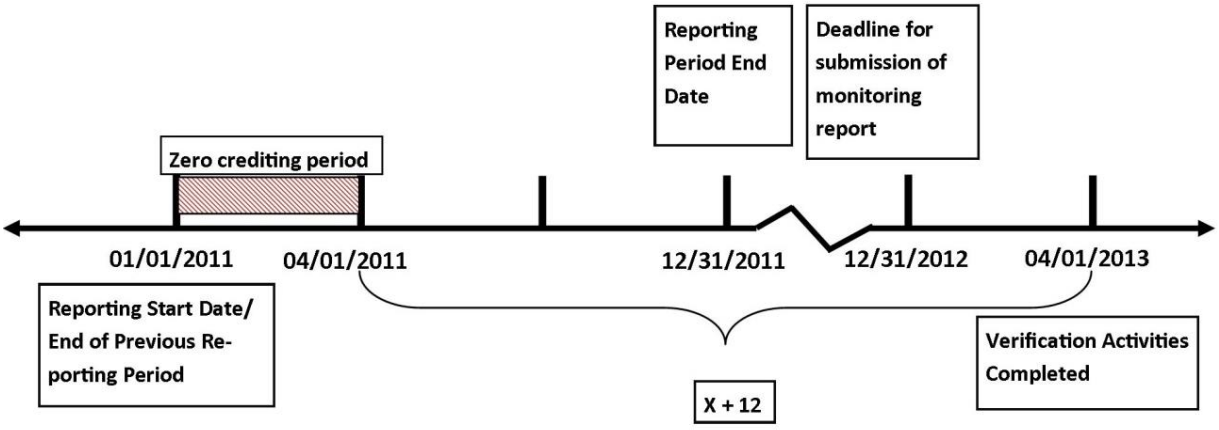
The only exceptions to the options regarding a missed verification deadline detailed above are for forest and urban forest projects, as these project types are not eligible for a zero-credit reporting period. If a registered forest or urban forest project misses a subsequent verification deadline, project account activities will be suspended until the verification is complete. The project developer has 36 months from the end of the reporting period(s) being verified to complete verification. Otherwise, the project will be terminated.

3.4.6 Zero-Credit Reporting Period

To provide flexibility for project developers in instances where verification is not practical for a specific reporting period/verification period, developers of projects *other than forest and urban forest projects* may choose to delay verification on the condition that they acknowledge no CRTs will be issued for any period of time that falls outside the standard window for completing verification of monitoring data. Such a period is referred to as a "zero-credit reporting period," and is generally defined as the period of time that is subsequent to the end of a project's prior verification period but is more than "X + 12" months prior to the date of submission of a Verification Report, where "X" is the maximum length for a verification period as specified by the appropriate project protocol. Project developers may also declare a project's initial verification period as a zero-credit reporting period.

For most eligible project types, the maximum length of a verification period is 12 months, allowing CRTs to be issued only for GHG reductions achieved up to 24 months prior to submission of a Verification Report. See Figure 1 below for an example.

Figure 1: Zero-Credit Reporting Period for a Project with a 12 Month Maximum Verification Period (X=12 Months)



For any zero-credit reporting period, the project developer must sign a Zero-Credit Reporting Period Acknowledgment and Election form (Acknowledgment and Election form) acknowledging

that CRTs will not be issued for any GHG emission reductions or removals achieved by the project during the zero-credit reporting period. Along with the Acknowledgment and Election form, the project developer must also submit the project's monitoring plan and a monitoring report to the Reserve that covers data for the zero-credit reporting period.

The Acknowledgment and Election form and monitoring documents shall be submitted via the Reserve software within 12 months of the end date allowed for a verification period (i.e. by the verification deadline). The monitoring plan and monitoring report are not publicly available documents. The Acknowledgment and Election form is made public.

If neither a Verification Report nor an Acknowledgment and Election form is submitted within 12 months of the end date allowed for a verification period, the project is either de-listed or cancelled (see Section 3.4.2 and 3.4.5).

A zero-credit reporting period may not exceed the maximum length for a verification period as prescribed in the protocol pertaining to the project. However, a project is allowed to have contiguous zero-credit reporting periods.

The Acknowledgment and Election form and monitoring documents are required in order to meet the regular documentation requirements of the Reserve program and ensure the continuation of a project's crediting period. CRTs for subsequent verification periods will not be issued until these documentation requirements are met. The submission of the monitoring plan and monitoring report for a zero-credit reporting period will satisfy the requirement for contiguous reporting in Section 3.4.2.

The Acknowledgment and Election form and project-specific monitoring report templates can be downloaded at http://www.climateactionreserve.org/how/program/documents/.

3.4.7 Zero-Credit Reporting Period Verification

To ensure that project emissions were not greater than baseline emissions during a zero-credit reporting period, monitoring data collected during the zero-credit reporting period must be verified the next time the project undergoes verification. While the project is not required to conform to the protocol's monitoring and QA/QC procedures during a zero-credit reporting period, the verification body must be able to confirm with reasonable assurance that project emissions were less than baseline emissions during the zero-credit reporting period. Project developers shall provide project documentation and calculations for zero-credit reporting period emissions to the verifiers.

If the verifier cannot confirm with reasonable assurance that project emissions were less than or equal to baseline emissions, the Reserve will make a determination of action on a case by-case basis.

The Reserve views a zero-credit reporting period as a separate reporting period from the one undergoing verification for CRT issuance; to that end, the zero-credit reporting period should not be represented as part of the verification period that will be issued CRTs. For example, the dates of the verification period being issued CRTs shall not include the dates of the zero-credit reporting period. Similarly, for attestations that specify a beginning and end date, the time period should not include the zero-credit reporting period (i.e. Attestation of Regulatory Compliance, Attestation of Voluntary Implementation).

3.5 Climate Reserve Tonnes (CRTs)

In the Reserve, GHG reductions and removals are recognized as Climate Reserve Tonnes or CRTs, which are equal to one metric ton of carbon dioxide equivalent (CO_2e) reduced or sequestered. After projects are registered, CRTs are issued based on the GHG reduction or removal amount reported by the project developer and confirmed by an approved verification body. CRTs are issued only on an *ex post* basis (i.e. after verification that reduction activities have actually occurred) and only for GHG reductions or removals that occur within the project crediting period. For transparency, each CRT has a unique serial number with embedded information that identifies the project type, location, developer, and vintage. The unique serial number persists as CRTs are transferred between accounts or are retired and become offsets.

3.5.1 Issuance of CRTs

CRTs are issued by the Reserve for actual GHG reductions or removals achieved by a project, as determined in approved Verification Reports. Once a project is registered and the project's account holder pays the appropriate CRT Issuance Fee, CRTs for verified GHG reductions or removals are released into the account holder's primary CRT account. CRTs will not be issued until the CRT Issuance Fee is received by the Reserve. CRTs can then be transferred to another Reserve account holder's account, moved into one of the project account holder's other accounts or retired.

An account holder can only hold or retire CRTs in its account for which it is the sole holder of legal title and Beneficial Ownership Rights, except as permitted under Section 9 of the Terms of Use.

3.5.2 Over-Issuance of CRTs

In the event that the Reserve determines that GHG reductions or removals for a project were incorrectly quantified or reported, such that the number of CRTs issued to the project account holder was in excess of the correct number according to the requirements of the applicable protocol, it is primarily the project account holder's responsibility to compensate for the over-issuance of CRTs.

The Reserve will notify the project account holder of the over-issuance, including the basis for its determination, and the number of CRTs to be surrendered for cancellation or authorized to be withheld from issuance as further described below. The Reserve shall determine, at its sole discretion, which option or combination of options a project account holder may use; this will be determined on a case-by-case basis and detailed in the over-issuance notification.

Within 30 days, the project account holder must:

1. Surrender CRTs for cancellation; and/or
2. Provide written authorization to the Reserve to withhold CRTs from future issuances to the project.

If the project account holder fails to satisfy its obligations within 30 days, the Reserve may:

1. Cancel CRTs held by the project account holder;
2. Withhold from issuance CRTs otherwise issuable to the project account holder; and/or
3. Purchase CRTs from third parties at the project account holder's expense and cancel them.

The project account holder may dispute the over-issuance determination using the dispute resolution provisions set forth in Section 11(c) of the Climate Action Reserve Terms of Use.

3.5.3 Transfer of CRTs

In order to transfer CRTs to another party, that party must have an approved account with the Reserve. There is a transfer fee to transfer CRTs from one account holder to another ($0.03 per CRT charged to the transferer). The transfer is conducted via the software between the two account holders; the Reserve does not play a role in the transfer.

Note that the Reserve does not function as a trading system or commodity exchange. The sale or purchase of CRTs takes place outside of the Reserve. Account holders may record sales by using the Reserve to move CRTs from one account to another. However, the Reserve makes no warranties concerning, and has no control over, the legal ownership of CRTs that may be held in individual accounts.

3.5.4 Retirement of CRTs

CRTs may be "retired" to indicate that the emission reductions or removals they represent have been used to satisfy a voluntary GHG emission reduction claim or to offset other emissions. To support such claims, CRTs are taken out of circulation so that they cannot be used to support any further claims. The Reserve retires CRTs by transferring them to a locked retirement account where they remain permanently and in perpetuity, precluding further use or transfer to other parties. Each account holder has its own associated retirement account. Information about retired CRTs is publicly available and includes details like project type, location, serial number, date issued, reason for retirement, etc. to support the transparency of the offsets within the Reserve. There is no charge to retire CRTs.

3.5.5 Holding and Retirement of CRTs on Behalf of Other Parties

In some circumstances, an account holder may hold and retire CRTs on behalf of one or more third parties. See Section 9 of the Reserve Terms of Use for related requirements.

3.5.6 Transferring CRTs from the Reserve

CRTs may be transferred to other GHG registries and offset programs under processes that are specific to the receiving registry/program.

VCS

CRTs may be exported to a Verified Carbon Standard (VCS) registry and converted into Verified Carbon Units (VCUs). Transfers may be initiated by any account holder with active CRTs. The account holder initiates this process as they would a CRT transfer. Once the transfer is accepted by the VCS registry administrator, the Reserve processes the transfer and VCUs are issued on the VCS registry. The exported CRTs are denoted as "converted to VCUs" in the Reserve software and public reports.

3.6 Transferring Projects into the Climate Action Reserve

Existing projects that have been registered with other carbon offset programs may be transferred to the Reserve if they meet, and are successfully verified against, the Reserve's protocol requirements, and if they meet the project start date requirements detailed in Section 2.4.3. Such projects must submit a Registry Project Transfer Form, available for download at http://www.climateactionreserve.org/how/program/documents/. The Registry Project Transfer

Form requires additional information and documentation to determine the status of the project and any offset credits issued for it under other programs.

The project developer must also provide the Reserve with a signed Project Transfer Letter before CRTs for that project are issued by the Reserve. The letter must be sent to the administrator of the other program where the project was registered, confirming that no further emission reductions or removals for the project will be verified or registered under the other program.

Transferred projects are considered pre-existing projects and thus are able to register more than 12 months of data during their initial verification with the Reserve (see Section 3.4.2). Transfer projects are also subject to contiguous reporting, which means that a project's initial verification period with the Reserve must be contiguous with the end of the last verification period under the program from which the project is transferred.

The crediting period for a transferred project will be reduced by the length of time that has elapsed since the project start date, as defined by each protocol.

Note that while projects can be transferred from another program to the Reserve, previously issued credits from another program cannot be transferred to the Reserve. Furthermore, projects that generated offset credits in the past but were never registered on a carbon offset registry cannot be registered with the Reserve.

3.7 Transferring Projects from the Climate Action Reserve

Projects may be transferred from the Reserve to other GHG registries and offset programs. To transfer a project, the developer shall provide a signed Project Transfer Letter to the Reserve specifying the effective date of transfer and confirming that no further emission reductions or removals for the project will be verified or registered with the Reserve.

Once a project is transferred, no future reductions or removals from that project will be registered as CRTs. Project information and previously issued CRTs will remain in the Reserve system under their given serial numbers. Previously issued CRTs may be transferred to other accounts on the Reserve system and retired on the Reserve system, as long as the project developer maintains an account with the Reserve. Section 3.5.3 of this manual describes how to transfer CRTs to other Reserve accounts.

3.8 Transferring Projects between Account Holders in the Reserve

Projects may be transferred between project developer account holders within the Reserve program. The project developer transferee (the project developer who is acquiring the project) must submit an Account Holder Project Transfer form and pay $500 per project transfer. The Reserve will review this form and the project will then be transferred to the new account holder. The original account holder will no longer have access to restricted (non-public) project information.

The Account Holder Project Transfer form can be downloaded at http://www.climateactionreserve.org/how/program/documents/.

3.9 The Reserve and the Verified Carbon Standard

The Reserve is the first recognized independent GHG offset program under the Verified Carbon Standard, a global standard and program for approval of credible voluntary offsets. As an approved VCS program, offset projects that meet the Reserve's protocols can generate VCS credits, known as VCUs. CRTs issued by the Reserve can also be converted to VCUs and transferred to a VCS registry (see Section 3.5.6). However, VCUs cannot be converted to CRTs; only projects registered with the Reserve using Reserve protocols are able to generate CRTs.

For more information on VCS, visit http://www.v-c-s.org.

4 Project Protocol Development Process

The Reserve is committed to producing high quality GHG project accounting protocols, and to this end uses an intensive multi-stakeholder process to develop its project protocols. This approach integrates extensive data collection and analysis with review and input from a diverse range of experts and stakeholders. Reserve staff guides this process to ensure that final protocols adhere to the principles outlined in Section 1.2. This process produces high quality, well-vetted, and credible protocols based on best practices from national and international standards. This section details the Reserve's unique and rigorous project protocol development process.

4.1 Screening Process

The Reserve uses an internal screening process to identify candidate project types with good potential for offset protocol development. The Reserve takes into consideration a number of issues when assessing a project type for further development, including:

- Does the project type create direct or indirect emission reductions? All else equal, the Reserve will focus on project types that result in direct reductions. Direct emission reductions are generally easier to verify because the sites where they occur can be directly monitored. When emission reductions occur at sites or sources owned by the project developer, there is also less risk that an entity other than the project developer will claim ownership of the reductions. Thus, these projects are unlikely to be at risk for double counting or ownership issues.

- How amenable is the project type to standardized additionality and baseline determinations? For some types of projects, it is difficult to credibly and accurately determine additionality and estimate baseline emissions on a standardized basis. In general, the Reserve will avoid developing protocols for these project types. Alternatively, the Reserve may incorporate project-specific methods or variables into standardized protocols as appropriate, or limit the scope of protocols to address only activities and conditions for which standardized approaches are feasible.

- What is the likelihood that the sector where the project activity occurs will be covered under a future cap-and-trade system? Since issuing offset credits for reductions that occur at capped emission sources would result in double counting, the Reserve prefers to focus on projects affecting GHG emissions that are unlikely to be capped.

- What are the total potential GHG reductions that could result from this type of project? As it takes significant effort and resources to produce a standardized project protocol, there should be large and geographically diverse potential reduction opportunities.

- Are there potential positive or negative environmental or social impacts from this type of project activity or the operations, facilities or sectors with which this type of project may be associated? Negative effects should be avoided. All else equal, the Reserve will prioritize sectors and project types that can create significant co-benefits for the habitats and communities where projects take place. Where necessary, the Reserve will also consider developing additional criteria for ensuring environmental and social safeguards.

- Are there existing methodologies or protocols that could serve as a starting point? Standardized protocols are more easily developed where sound scientific methods already exist to determine baselines and quantify emission reductions.

- Are there high quality datasets to evaluate "business as usual" activities for the sector in which the project activity occurs? Setting performance thresholds and other standardized tests for additionality requires defensible data on the current state of the sector.

Once the internal screening process is complete, project types with good potential are either explored more fully through the development of an issue paper or the Reserve holds a scoping meeting to engage stakeholders in further evaluating what types of activities should be targets for protocol development.

4.1.1 Issue Paper

An issue paper evaluates the feasibility and desirability of developing a protocol (or set of protocols) for a particular project type. It assesses possible issues with developing a standardized protocol for the project type, including an evaluation of potential approaches to GHG emission quantification; exploration of options for defining eligible project activities; evaluation of approaches to setting project boundaries; and assessment of the availability of datasets and other pertinent information. It also assesses the environmental and social impacts associated with prospective project activities, as well as potential impacts from the operations, facilities or sectors with which project activities may be associated. Issue papers are prepared by researching existing sector methodologies and datasets and consulting sector experts. After completion, the issue paper may be sent to interested parties (industry experts, environmental groups, state agencies, academics) for review and comment.

4.1.2 Scoping Meeting

Interested parties may be invited to a scoping meeting to discuss protocol development options and challenges for the project type in question. At the scoping meeting stage, the Reserve will generally propose a series of activities within the project type category for which specific accounting and verification standards could be developed. Feedback from the scoping meeting is used to determine whether the Reserve will move forward in developing a protocol, and which activities the protocol should encompass.

4.2 Development Process

After a project type is identified, the Reserve follows a rigorous multi-stakeholder consultation process to develop an appropriate protocol.

4.2.1 Workgroup Assembly

To initiate the project protocol development process, the Reserve assembles a balanced multi-stakeholder voluntary workgroup, drawing from industry experts, state and federal agencies, environmental organizations, and other various stakeholders. Workgroups are assembled by invitation, but all parties are encouraged to express their interest in participating in the workgroup process. Throughout the protocol development process, the workgroup provides expert review and direct input into the development of the project protocol.

Interested stakeholders that are not on the workgroup can still participate in the workgroup process as "observers." Any individual is welcome to be an observer to a protocol development

process. Observers can listen to workgroup meetings via conference call, but are not solicited for comments or feedback until the public review period.

4.2.2 Options Paper

Where appropriate, the Reserve may develop an options paper to further address and lay out different approaches for key elements of the protocol. A draft is shared with the workgroup and comments are incorporated into a final options paper that forms the basis of the draft protocol.

4.2.3 Draft Protocol for Workgroup Review

The Reserve develops a draft protocol based on expert input and insights from an issue paper or the final options paper. The draft protocol is released to the workgroup for review and revision, and is also posted on the Reserve's website for review by observers and other interested members of the public. The draft protocol review process usually includes at least one or more in-person workgroup meetings in which members are invited to discuss issues at length. At this point in the process, the Reserve explicitly requests input on possible environmental and social harms associated with project activities and associated operations or facilities, and requests discussion of whether existing legal and regulatory safeguards are appropriate and adequate to mitigate any harms.

Written comments from the workgroup are incorporated into the draft protocol, which may go through multiple iterations of workgroup review before it is ready for public review. Note that observers and the public do not comment on the draft protocol at this stage.

4.2.4 Public Review Period and Public Workshop

The revised draft protocol is posted on the Reserve's website for a 30-day public comment period. The public is notified via the Reserve's listserv database and other venues, and reviewers are asked to submit written comments. During the 30-day public review period, the Reserve also hosts a public workshop to solicit feedback and address concerns regarding the draft protocol in an open forum. After receiving written feedback, all comments are recorded and addressed. A final protocol is produced, taking into account public comments and any further workgroup feedback.

4.2.5 Board Approval

The Reserve's Board of Directors must vote to adopt each project protocol. Protocols are presented at quarterly board meetings, which are open to the public, and issues raised throughout the development process are reviewed, giving workgroup members and interested stakeholders a chance to raise any last concerns or questions. After the Board adopts the protocol, it becomes an official Reserve protocol and is immediately available for use.

4.2.6 Ongoing Public Feedback and Comments

After Board approval, the Reserve continues to solicit, document, and respond to public feedback and comments on the current version of the project protocol. Comments and feedback on adopted protocols can be submitted to the Reserve at policy@climateactionreserve.org. The public is also welcome to contact Reserve staff directly to discuss their comments and concerns.

Public feedback and comments are assessed on an ongoing basis and may initiate a revision to a project protocol.

4.3 Revisions to Project Protocols

After Board approval, the protocols are periodically revised in light of public comments, on-the-ground experience, and technological, scientific, and regulatory developments. In addition, the Reserve may review and update performance standards and standardized baselines to ensure they continue to effectively screen projects for additionality and accurately represent "business as usual" emissions. There are two types of revisions to project protocols: policy revisions and program revisions.

4.3.1 Policy Revisions

Policy revisions are those that affect project definition or eligibility, or that involve significant changes or adjustments to baseline estimation and/or the quantification of emission reductions or removals. A policy revision is generally focused on specific elements of the protocol and is not necessarily an opportunity to revisit all decisions made in the initial protocol development process.

Depending on the extent of the revision, the Reserve may convene an expert stakeholder group or reach out to stakeholders involved in the initial protocol development process. This group may be asked to comment on a revised draft protocol or be convened to discuss key issues prior to changes being circulated for comment. All policy revisions require a 30-day public comment period and adoption by the Reserve's Board. Policy revisions are brought for adoption at the quarterly board meetings or are brought to the executive committee of the Board for adoption if expedited action is required. When adopted, a policy revision creates a new version of the project protocol (e.g. Version 1.0 undergoes a policy revision to become Version 2.0).

4.3.2 Program Revisions

Program revisions are editorial or technical in nature and do not require a public comment period, nor do they require adoption by the Reserve's Board. These revisions do not significantly change the policies or eligibility in the project protocol, but can change or revise quantification methodologies or monitoring requirements. Program revisions create a new sub-version of the protocol (e.g. Version 1.0 undergoes a program revision to become Version 1.1). Program revisions are considered adopted on the date they are posted on the Reserve website. A protocol revision notification is sent to the Reserve's listserv and to Reserve account holders at that time.

4.3.3 Grace Period for Registration under Prior Protocol Versions

Project developers have 90 days from the date on which a revised protocol is adopted to submit a project to the Reserve using the previous version of the protocol. The project must still complete verification within 12 months of the end of its initial reporting period. Otherwise, the project must be resubmitted for registration under the most current version of the protocol.

Projects that have been registered using a previous version of the protocol are not required to have their projects verified under any updated versions. Instead, projects may continue being verified against the original protocol version for the duration of their crediting period. Project developers always have the option, however, of voluntarily choosing to verify against the most current version. Applying the most current protocol to a project does not change the project's crediting period.

4.3.4 Errata and Clarifications

If typographical errors are found in a protocol after it is released, the Reserve may issue an "Errata" document indicating required corrections. Errata are issued to correct typographical errors in text, equations or figures. Similarly, if the Reserve discovers that certain protocol requirements are ambiguous or in need of further guidance, the Reserve may issue a "Clarifications" document. Clarifications are issued to ensure consistent interpretation and application of the protocol.

Errata and Clarifications documents become effective immediately for the version(s) of the protocol to which they apply (applicable versions are identified in each document). Project developers and verification bodies must refer to and follow the corrections and guidance presented in Errata and Clarifications documents once they are issued. Errata and clarifications are considered effective on the date they are first posted on the Reserve website. All listed and registered projects must follow the guidance specified in the Errata and Clarifications document. On a case-by-case basis, in order to ensure that the protocol is consistently applied and that the purpose of the protocol is achieved, the Reserve has sole discretion to apply current errata retroactively to a project for which CRTs have been issued prior to the release of the errata that may affect quantification of its GHG reductions and/or CRTs issued.

All account holders and verification bodies will be notified if an Errata and Clarifications document is released or updated. Errata and Clarifications documents will be appended to all applicable versions of the protocol, and will also be available as stand-alone documents on the relevant protocol's webpage. The errata and clarifications identified in these documents will be incorporated into subsequent versions of the relevant protocol.

4.4 Communication with Public

Current versions of each project protocol and information about protocols in development are available at http://www.climateactionreserve.org/how/protocols/. Each project protocol also has its own dedicated webpage that can be accessed from here.

Interested members of the public can receive protocol development announcements and program updates by joining the Reserve's mailing list at http://www.climateactionreserve.org/news-and-events/newsletter/.

5 Glossary

Aggregator	A corporation or other legally constituted entity, city, county, state agency or individual (or a combination thereof) that manages projects within an aggregate. In the Reserve software, this account enables the management of projects held by aggregation participants.
Aggregation participant	A corporation or other legally constituted entity, city, county, state agency or individual who is participating in an aggregate according to protocol-specific rules and procedures. In the Reserve software, this account type allows the creation of a project that is linked to an aggregator account. CRTs issued to an aggregation participant's project may only be transferred to the linked aggregator account.
Business day	Any day except Saturday, Sunday or a Federal Reserve Bank holiday. A business day shall open at 8:00 a.m. and close at 5:00 p.m. Pacific Prevailing Time.
Client	In the Reserve software system, a "client" is an organization or individual who wishes to retire CRTs but does not develop its own projects.
Climate Action Reserve	The national offsets program that establishes standards for quantifying and verifying GHG emission reduction projects, issues carbon credits generated from such projects, and tracks the transfer and retirement of credits in a publicly-accessible online system.
Climate Reserve Tonne or CRT	The unit of offset credits used by the Climate Action Reserve. One Climate Reserve Tonne is equal to one metric ton of CO_2e reduced or sequestered.
Completed	A project is considered "completed" when it is no longer reporting to the Reserve. A project is completed if it reaches the end of its crediting period(s), becomes ineligible, or if the project developer chooses not to continue reporting. The reason for the completed status is noted in the Reserve's public reports. Once a project is completed, project information remains publicly available indefinitely.
Group Retirement Subaccount	The subaccount for the retirement of CRTs that are held by an account holder on an omnibus basis on behalf of one or more third parties that hold legal title and/or beneficial ownership rights in those CRTs.

Listed	A project is considered “listed” once the Reserve has satisfactorily reviewed all project submittal forms. The project will then appear in the public interface of the Reserve system.
Offset	A reduction or removal of GHG emissions from the atmosphere that is used to compensate for an equivalent amount of emissions from another GHG emitting activity occurring elsewhere. For the purposes of the Reserve program, a CRT becomes an offset when it is retired.
Project developer	An organization or individual that registers projects for the purpose of generating emission reductions or removals. In the Reserve software system, project developers may be issued CRTs for the verified emission reductions or removals that their projects achieve. They can also transfer and manage CRTs.
Project protocol	A Reserve-developed document that contains the eligibility rules, GHG assessment boundary, quantification methodologies, monitoring and reporting parameters, etc. for a specific project type. Project protocols are akin to “methodologies” in other offset programs.
Reduction	A verified decrease in GHG emissions caused by a project, as measured against an appropriate forward-looking estimate of baseline emissions for the project.
Registered	A project is considered “registered” when the project has been verified by an approved third-party verification body, submitted by the project developer to the Reserve for approval, and accepted by the Reserve.
Removal	A verified increase in carbon stocks caused by a forest project, as measured against an appropriate forward-looking estimate of baseline carbon stocks for the project.
Reporting period	A discrete period of time over which a project developer quantifies and reports GHG reductions to the Reserve.
Retired	When CRTs are transferred to a retirement account in the Reserve system, they are considered retired. Retirement accounts are permanent and locked, so that a retired CRT cannot be transferred again. CRTs are retired when they have been used to offset an equivalent tonne of emissions or have been removed from further transactions on behalf of the environment.
Submitted	A project is considered “submitted” when all of the appropriate forms have been completed, uploaded, and submitted to the Reserve software.

Trader/Broker/Retailer	An organization or individual that transfers and manages CRTs in the Reserve system, but does not develop its own projects.
User	An individual or entity that holds an account with the Reserve and has agreed to the Terms of Use and shall include such representative as the entity shall appoint and designate by completing the Designation of Authority form.
Verified	A project is considered "verified" when the project verification body has submitted the project's Verification Statement and the Verification Report in the Reserve system.
Verification body	An organization or company that has been ISO-accredited and approved by the Reserve to perform GHG verification activities for specific project protocols.
Verification period	A discrete period of time over which a project's GHG reductions are verified. Under some protocols, a verification period may cover multiple reporting periods. The end date of a verification period must correspond to the end date of a reporting period.
Verifier	An individual that is employed by or subcontracted to an ISO-accredited and Reserve-approved verification body and is qualified to provide verification services for specific project protocols.